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# JOURNAL

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## ASIATIC SOCIETY.

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*Journal of a Mission from the Supreme Government of India to the Court of Siam.—By DR. RICHARDSON.*<sup>1</sup>

February 10th.—Being Sunday, I had little communication with any one. In the evening Coon-Sit paid us a second visit, accompanied by Radsithee; he is the son of the Pra-Choolia, who is chief of the natives of the Coromandel Coast settled here, and from whom Mr. Crawford and Colonel Burney received all the annoyance and opposition in his power; he is descended from the natives of the other side of the Bay, and retains his dress and religion. Mr. Hunter called this morning on the Praklang, where he met his brother Pya-si-pi-pat, and some other of the officers who have been ordered to sail with a reinforcement of about 7000 men, (of which Pya-si-pi-pat is the generalissimo) to assist the Rajah of Ligore, against the Malays of Queda. Out of all the royal war vessels, not one was fit to put to sea, being destroyed by white-ants and other causes. They are ordered to start immediately, and are afraid to tell the king the state of the navy; they were consequently at their wits' end for ways and means, besides there being an evident disinclination for the service. The Puttanee people have joined the insurgents, and it is expected they will attack Sangora, which still holds firm its allegiance. The proper heir to the throne of Siam, the late king's eldest legitimate son, who entered the priesthood when

<sup>1</sup> Continued from p. 30. vol. ix.

the present king (who is a natural son) took possession of the throne, hearing that I spoke Burman, sent a message to the Praklang, that he wished to see me, as he also has a knowledge of that language. I have not heard whether his request was granted. The king has for some time wished this brother to throw off the yellow garment, and has promised to advance him to high office, but he has vowed, it is said, never to prostrate himself before the king, and does not seem inclined to accept his offer; being in the priesthood, when they meet, the king is obliged to reverence his cloth.

Mr. Hunter intimated to the Praklang my wish to call on him again to-day, and as they have not made any offer to assist us, it would probably be advisable at once to apply to the Praklang for an order to the South-West chiefs to permit the sale of elephants and cattle, as the season for passing through the country is rapidly wearing away, and especially as a letter had been received by Mr. Hunter a day or two previous to my arrival, from George De Castro,\* dated Chumphahoon, the 7th January, to which place he had been sent from Mergui for the purchase of elephants and cattle, which the Myo-won had refused to sell without an order from this government. In the evening, accompanied by Mr. Hunter only, I went to the Praklang's, he was waiting for us in the hall in which he previously received us, along with his assistant and several other government officers; my reception was cordial and friendly as before. I took with me a present of two rolls of Brussel carpeting, a pair of pistols, a pair of porcelain essence bottles, and a few articles of cut glass; he said he was much obliged to me for not only coming through the desert I had passed, to make the bands of friendship stronger between the English and the Siamese, but in addition, for bringing presents. I remarked the presents were valuable only as pledges of that friendship; he said true, and that friendship was invaluable. From the white elephant of Maulmain,

\* A person sent by the commissioner in the Tenasserim provinces to purchase elephants and cattle on the public account at Chumphahoon, on the Gulf of Siam.



and about which they did not display much curiosity, the conversation led to that at Ava, and hence to Ava affairs. Generally from the whole tenor of his remarks, it was impossible not to see that his sentiments were the same as those of his son and Radsithee. After waiting till the subject was nearly exhausted, and he had several opportunities of offering his assistance and co-operation, without having done so, I produced George De Castro's letter, which Mr. Hunter, who interpreted, had before explained, and begged he would send an order to Chumpahoon, and all the officers on that frontier, to permit the people to dispose of their cattle without interference, and that I might be furnished with a copy to transmit to Mr. De Castro. He said he had already seen that letter, but that as I was daily expected when it was received, he had not yet mentioned it to the king. He made the usual objections on the score of religion to furnishing cattle for slaughter; I said there was no denying that we killed cattle for food, and that we did so without attaching any criminality to it. I mentioned the fact of the Burman army round Rangoon having slaughtered and eaten cattle which we had refrained from killing; that many of the Laos and Siamese people killed bullocks, and that I had never heard any of them refuse to eat beef; that 300 pigs were killed daily at Bankok, and, moreover, that before we bought the Laos cattle, they were sold to the Red Kareens, who killed and eat them under the name of sacrifices to the Nâts; but that the cattle now required were for the carriage of supplies, and not for slaughter. I also requested an order to the Isoboas of the northern Laos towns not to interfere to prevent their people from selling their surplus cattle, and requested permission to take it up myself, as we wished to make arrangements for an efficient supply of cattle reaching the Provinces by the beginning of May, and that I would return here if the king and ministers wished; that I should remain for a short time, to keep the ministers informed on the true state of affairs between the British Government and the Government of Ava. He inquired on what route I should wish to travel; I said by land, up the banks of the May-Ping, or any route he thought shortest and best. He replied there

was no road that way for elephants; and Mr. Hunter said, he had seen elephants brought down the river on rafts. I said it was merely my personal dislike to travel in a boat that made me wish to go by land, but that that must not be allowed to interfere with public duty; if I were obliged to go by water, I should wish to leave the boats as soon as I could proceed by land, and buy elephants for the rest of the journey. He said I might go how I pleased; that the Isoboas have had orders to allow the people to sell, and had never interfered with their doing so. I said they had never in so many words ordered them not to sell cattle, but he well knew how easy it was to prevent it without such an order; as difficulties were thrown in the way, and the people were indirectly brought into trouble and fined, who did sell their cattle. He said the Isoboas were only tributary.

I asked when I was to have the honor of paying my respects to his Majesty; he said, he was but minister, and could only say I should have an audience; it remained with his Majesty to fix the day. I have been visited to-day by the Portuguese Consul and his Secretary, by the American Missionaries, and have received presents from his Majesty and the Praklang of fruits, &c.

*February 12th.*—Received presents of fruits, &c. from the King and Praklang, and a message from his Majesty to know if we were supplied with every thing we wanted, and whether my people wanted any thing. Benedito, the native Portuguese, the head of the native Christians here, (of whom there are a good many), was the bearer of the message, and said he had orders to call on me daily and attend to my wants. The Chow-fa, the second legitimate son of the late king, a very extraordinary man for a Siamese, has been expressing a strong wish to see me; he is about thirty years of age, reads and writes English with very great facility, has his house furnished expensively in the English style, and is on terms of intimacy with Mr. Hunter and other English gentlemen here, notwithstanding the strictness of Siamese etiquette. He was nearly coming to see me this evening, in fact he came down to the house and spoke to Mr. Hunter and Captain Brown for an hour or so. I have seen none of the officers of Government to-day, nor shall I before my

audience with the king, which is fixed to take place on the 17th. The Praklang is a great epicure, and withal liberal of his good things; he sends me daily several dishes of what he thinks the best, and is always particularly anxious to know if I eat any; he made very particular inquiries on that head, of Piadadie to-day. It seems to be with him quite as important a matter as any state duty he has to perform, in which he is not particularly interested. Patience is a virtue almost invaluable here.

*February 14th.*—Went to the Praklang's garden this morning, in hopes of meeting him, and hastening him in some little matter I was anxious he should settle, but did not see him. Mr. Hunter was sent for by him in the evening, to explain a view of London I had brought as a present to the king. I fear I shall have no business done before I obtain an audience of his Majesty. Piadadie called this evening for the king's presents, which I handed over to him.

Some of my Taline followers crossed over to the city to-day in a boat of Mr. Hunter's (as no Siamese or Taline dared furnish them with one) to see their relatives; there is a good deal of excitement amongst them, as a belief prevails that I have come to demand their release. The circumstance of the people crossing was reported to the king, who ordered that they should go wherever they pleased; he does not, however, wish me to take any of them to the audience, and they complain that their friends are still prevented coming to them.

*February 15th.*—Mr. Hunter saw the Praklang, who had sent Coon-Sit, his son, for my tents, to see them pitched, as he wished to have one made should he be obliged to go against the Malays. I had sent a message to him in the morning by Benedito to say my Taline people were very anxious to see the king, and as they were not subjects of Ava but England, I wished he would get permission for them to do so. He told Mr. Hunter I was to be received with higher honors than he had ever witnessed at Siam, and that they could not be admitted this time, but should I afterwards have a more private audience, they should then be allowed to accompany me. He also told him letters had arrived for me at Camboorie, but that the Myo-won was afraid to allow the messenger (who would not give up

the letters) to come on, without orders ; the Praklang had immediately dispatched an order that he should be forwarded forthwith. I doubt there is little chance of their arrival here in less than a week.

*February 16th.*—Benedito visited me to-day to make arrangements for the audience. Mr. Hunter had, however, settled all these matters with the Praklang. In the evening I heard prince Chow-fa, who will probably succeed to the throne, was going on board the whale ship *Hamilton*, and as I knew he wished to see me, but did not wish openly to come here till after the audience, I went on board just before dark, and soon after it was dark he came on board. He was in a small boat, and only four or five men with him, dressed, as all ranks usually are, with a cloth and crape scarf round his loins ; he is a stout dark man, about 30, with a good tempered appearance, of which he has the character, laughs heartily, and speaks English with very tolerable proficiency ; he is intimate with Captain Browne and Mr. Hunter ; shook hands with me on coming on board, and said, “oh, oh, I should not have seen you, till you had seen the king”. I told him I had heard much of him, and was very anxious to see him, but this meeting was of course quite accidental. He remained about an hour talking familiarly with us all ; he expressed a wish to see the map I had of Ava, and the North of Siam, and talked of my route and observations. He is himself an excellent observer, and much attached to the English and English manners and habits.

*February 17th.*—This being the day appointed for my audience with his Majesty, about half-past nine, Benedito, who was to accompany us from the house, reported the boats ready to take us over the river, and at 10, we started ; Mr. Hunter and myself in one boat, such as is used by the ministers ; Captain Browne, of the whale ship *Hamilton*, Mr. Smith, and Mr. Hayes, gentlemen belonging to Mr. Hunter’s establishment, and an officer of Captain Browne’s ship in a second boat, like a Burman pounge ; and my followers in a third. In a few minutes we crossed the river, and passing up beyond the landing place used by the king, landed near some large sheds, where we found Piadadie, and several other native Christians, officers of the



Siamese army, dressed in their embroidered uniforms, with gold epaulets, &c. waiting to receive us. Benedito had a spare cocked hat, with tawdry embroidery and some rubies of small value, stuck about it, carried before him on a thing like a barber's wig block. Mr. Hunter and myself had brought with us two hammocks furnished us by his Excellency the Praklang, in which I was carried by eight of my own bearers, and Mr. Hunter by four of his own servants. We had here to wait several minutes for the horses which were provided for the other gentlemen; they at length arrived, and we moved forward, preceded by Benedito, Piadadie, and others. Though within a few paces of the southern entrance of the palace, we were as usual not allowed to enter there, but carried round through one or two small streets by another gate, further from the palace. Outside the inner gate the native Christians took off their shoes and stockings, and immediately within it we got out of our hammocks, and walked through two lines of soldiers, who on this occasion were all standing up, some with shouldered arms, some at ease, some muskets on one shoulder, some on the other. Though there are said to be an immense number of muskets in the country, many of those used to-day were so covered with rust as to be useless. The men were all dressed in a sort of uniform jacket, or red shirt, with a conical red cap of varnished basket work. Some, I suppose the native Christian artillery-men, were dressed in better jackets, and blue cloth caps, with a little yellow embroidery. They generally were I think under sized, decidedly inferior in point of muscularity to the Burmans, and some of them mere boys. There was a formidable body of what the Burmese call "dank yea," brave "sticks," armed with clubs, any one of whom is said to be able to keep off two Siamese swordsmen; there was also a body of spearmen, and close to the door of the palace the band, composed chiefly of drums, trumpets of various kinds, and hunter's horns. Outside the first enclosure there was a small body of cavalry, perhaps fifty horses, and inside the second enclosure, close to the road, fifteen elephants, each with two riders besides the mahout, all dressed in red cotton velvet jackets, some were plain, some embroidered, with caps to correspond. A short way from the palace door we

were shown into the Praklang's hall of justice, in which a carpet was spread, and a seat prepared for us; here, with Benedito and some other of the Portuguese officers, we were detained for forty-five minutes, till the princes were assembled. The people were perfectly civil, and with a little mild persuasion of the rattan, tolerably quiet. My people came with me to this hall, and followed me to the door of the palace, where they might have remained quietly, had not some of them attempted to come into the hall; they were in consequence conducted back to the hall where we had halted, outside the gilt door of the palace, which was closed. The Siamese and native Christians who accompanied us fell on their knees and made as many prostrations as they could, for a minute or less, while the door was opening. We walked in, taking off our hats at the door, Benedito creeping in before me on his knees and elbows, and some of the others crawling near us. Immediately inside the door, is a gilded screen, near which the people were lying so close that only one could pass at a time; after passing it we came in sight of the king; beyond this we advanced a few paces, and sat down on the carpet (which covered the whole centre of the hall) in the place pointed out to us, making two or three salams to his Majesty, after which he called us to come nearer; myself and Mr. Hunter then went in advance of the presents I had brought, and the other gentlemen close up behind. At one side, and immediately in front of us, was Pia-pil-pat, the second Praklang, who was the channel of communication with his Majesty. The Pya read a list of the presents, commencing and ending with a long list of his Majesty's titles; after which, the king at intervals put the usual questions, and as Piadadie (the interpreter) who met us when we landed, had been taken ill and obliged to go home, Mr. Hunter was requested to act as interpreter, and spoke sometimes in the Portuguese of this country to Pascal, and sometimes in Siamese to Radsithe. The king asked if it was the same Governor General who had sent Colonel Burney, who now ruled India; how long the present Governor General had had his sway there; asked after the Queen, the Right Honorable the Governor General and the Com-

missioner's health, how long I had been on the road, how treated, &c. &c. Near the end of the audience, he inquired on what terms we were with the Burmans; I detailed fully the state of our relations with Ava. He said, the Siamese had always been the foes of the Burmans, who are never to be trusted; the Cochin-Chinese are also of the same character; for though he had been a benefactor to the present king's father, they had gone to war with him; but with the Chinese they had always been friends from the beginning of time, and hoped they should be friends, through all time coming, with the English. I took the opportunity of saying, that the Right Honorable the Governor General would be happy to hear how entirely his Majesty's wishes for increasing friendship and intercourse between the two countries coincided with his own. He said he was much obliged to the Governor of Bengal for the present Mission. From the knowledge I have of the Laos language, and its affinity to the Siamese, I could make out that my answers to the king's questions were modified to meet the royal ear. Mr. Hunter, however, told me that the entire substance of what I had said was communicated. At the end of the audience his Majesty said, if I had any business to transact, the Chowkoon-booden and Chowkoon-maha-see-na (the Praklang) would attend to it, and that any wish of the Governor of Bengal was the same as if it were his own. He requested Mr. Hunter (whom they consider as a Siamese officer) to pay me every attention, and let me want nothing that was to be had in Siam; he then gave a few strokes with a ratan on some metallic substance, and the gold cloth was drawn across the hall before the throne, the courtiers all made repeated obeisances, and the audience closed. We remained a few minutes after the king had retired. Coon-Sit came over to us and introduced me to Chowkoon-booden, who said he should be glad to see me, and hear every thing I had to say. The hall of audience is about 120 feet long, and 60 broad, with two unsightly rows of square brick pillars, about 15 feet from the wall; and between these pillars there is a space of about 45 or 50 feet covered with carpets; close to the curtain, a little to the left of the throne,

with their heads towards the king, crouched upon their elbows, were the princes of the blood, perhaps 20 or 30 in number; immediately behind them, the Chow-pya Praklang (who is also Kalahon, a higher office than Praklang, in virtue of which he controls the affairs of one half of the kingdom towards the west and south); beside, and behind him were a number of the highest officers, inferior to him; on the right of the king, in a line with the Praklang, Chowkoon-booden, the prime minister, (who rules the eastern and northern half of the kingdom) was crouched, with officers the same as the Praklang near him. The whole of the rest of the hall was crowded with officers of less note, except a space of 10 or 12 feet wide right down the centre, where we were seated, about one-third of the way up to the hall, the presents immediately behind us; Piatschadook Pia-pi-pat, the Praklang's deputy, and Pia-Choolia, the chief of the natives of the Coromandel Coast, immediately in front of us; Mr. Hunter on my right, and Radsithee close to him. The king, who was seated on his highest throne, on which Mr. Hunter had never before seen him, addressed Pia-pi-pat, who repeated the questions to Radsithee, he again to Mr. Hunter, who communicated them to me. The hall is painted to resemble paper, with a paltry looking glass above, and a miserable print between each window. The courtiers were all dressed in their robes of ceremony, muslin with flowers of gold, and heavy gold embroidery on each arm; the six first on each side of the hall had, besides these, a gold betel apparatus, diminishing a little in size from those of Chow-pya-koon-booden and the Praklang, which were in size and shape like an old fashioned soup tureen; those behind them had the same apparatus, and some of less costly materials. The throne was raised about 15 feet from the floor, apparently all of gold, in shape something like a boat, with four pillars and a small canopy, all of the same metal; close to the feet of it was a child about 11 years old, I believe the youngest son of the king; near him was a musical clock, which was sent out a present to the emperor of China from England, with Lord Amherst, and was bought for the king by Mr. Hunter.—On the whole, my reception (as I was frequently told it would be) was one of



more state and ceremony, and of longer and more friendly nature as regards the time of its continuance, (lasting one hour and 20 minutes) and number of questions put, than has been granted to any Mission for many years, which I presume may be attributed to the more just idea they now have of the power and resources of the British Government. The conquest of Ava, and the long retention of the provinces, are however the only data on which they form their estimate, in addition to the personal character of Mr. Hunter, who, in a residence of 14 or 15 years, at first under very trying circumstances, has, by honorable dealings and a proper degree of self-respect, obtained for himself great influence with the king and officers of Government, and (by the influential people to whom he has familiar access) a nearer approach, as far as their ignorance and arrogance would permit them, to a more just appreciation of our relative rank in the scale of nations. On leaving the hall we visited one or two of the richest Kyoungs, or convents for the priests, the gilding and gold ornaments of some of which were solid and expensive; one of the chandeliers, of which there were many suspended from the high roofs of the building, was pointed out to me as having cost 100*l.* in London. In the same Kyoung is the famous image, said by the Siamese to be one entire emerald, of about 18 inches or two feet high, which was pronounced by Mr. Finlayson to be either Chinese figure-stone or a peliotrope, but as it is raised on a pyramidal pedestal (richly gilt and inlaid with gold) of about 16 or 20 feet high, it is difficult to say what it is. The whole of the outside of the building is also gilt, and inlaid with stained glass, and the appearance is altogether rich and unique; round the edifice are a number of grotesque figures of fabulous animals. From this we visited a second, somewhat inferior to the first. My Burman followers have remarked, that there is not a pagoda or priest's house, that they can hear of, in Bangkok, that has not been built by the king, or some of the very highest officers of the kingdom; who, as they remark, can oblige the poor people to do the work, whilst they take the credit; and there is no doubt, that though the Siamese do not perhaps extort money from the lower orders in the way the Burmans do, they exact so much more personal

service from them, as they have no time to acquire any by extortion. We were then taken to see the large guns, one of which, in particular, a brass one, was cast by the nobles, the king superintending. The mould was placed upright, and surrounded by stairs on all sides, the princes and great officers were all seated round with bellows and smelting pots; when the metal was ready, at a signal given by the king they all ran up the steps with their pots, and poured the contents into the mould. This gun is probably not less than seventeen or eighteen feet long, and the bore about six and a half inches in diameter. There were a great number of good iron guns of different calibers, piled up in sheds, in various parts of the palace enclosure, and a good many others mounted in a shed near the wall. We then visited the white elephant, one male now only remaining of the five which were here at the time of Mr. Crawford's Mission; he is a large handsome animal, much like the one in Ava, excepting that from vice he has broken off both his tusks nearly close to the jaw. They made some inquiries about the one in Maulmain, which is very much darker than this, though said to be an Isadan. From the elephant-shed, which is close to the river, outside the palace enclosure, we embarked in the boats which had come round for us, and returned home. In the evening the Praklang sent for Mr. Hunter to inquire how I was pleased with my reception, who told him that I was highly pleased with every thing.

*February 18th.*—To-day I returned the visit of the Portuguese Consul, Mr. Marcelleeno. In the evening Coon-Sit called on his way to the palace, where he and a number of others, who are honored with the title of "ma-lik," or little dogs, nightly attend from about 9 or 10 o'clock till 1 in the morning, when all the news of the city is talked over; sometimes they are detained even later. He asked me how I sat in the presence of, and how I addressed, the king of Ava; I told him, I sat as I had done yesterday at the palace, and addressed the king as familiarly as I did him now; he confessed it was better than the way they were obliged to lie here like dogs. There has been an absurd story current in the town to-day of an attempt I wished to make on the king's life; it was said, I had brought three boxes as presents,

two of which I opened and shewed the contents, but the third I had refused to open except in the presence of his Majesty alone, who had, however, with great sagacity, discovered it to be filled with some explosive materials, and gave orders that it should not be admitted into the palace. Absurd as this story may appear, it was firmly believed by a number of people. Scarcely any thing is too ridiculous to gain credit, even with the highest officer. Some Siamese had been in Maulmain last year when the European Regiment was landing there, and on their return, reported to the Praklang that an immense force of Europeans in fifty ships were at Maulmain, destined to attack Siam; he immediately sent for Mr. Hunter and questioned him about it, who used all the reasoning he could to convince him of the falsehood of the report; he at last told him, which at all events prevented them from saying any thing more about it, that the English would certainly not collect fifty ships to take Siam, as two would be quite sufficient; he heard no more of the intended invasion.

*February 19th.*—About three o'clock this afternoon Benedito and Pascal came to conduct us to the house of Chowkoonbooden. Josis Piadadie continues sick, and Mr. Hunter was kind enough to act as interpreter; Captain Browne and Mr. Smith accompanied us. After about half an hour's detention, (attended by the Portuguese above mentioned and Radsithee) whilst coffee and sweetmeats were served in a small shed 10 feet by 20, outside the enclosure of his present habitation, where a band of dancing women (he and Cromaluang-rak, the king's uncle, and the head of the princes only are allowed to have dancing women) exhibited for our amusement,—we were conducted into the hall, where we found him seated on an elevated platform, the second Praklang and several Siamese officers on one side, and some 20 or 30 Laos chiefs on the other. Chairs and the Praklang's coffee equipage were placed for us on the same side as the Siamese chiefs. After I had expressed the thanks of the Right Honorable the Governor General in the terms of Mr. Prinsep's letter, and of Mr. Blundell, as conveyed in his letter to the ministers, nearly an hour was spent in compliments and general professions of friendship for

the English; and in return, I assured him of the deep interest the Right Honorable the Governor General and high officers in India had in the welfare of Siam, and their sincere wish for the continuance of the very friendly relations at present existing between the two countries. I said I was much obliged to the king for the honor of an early audience; and that I could not forget his friendly assurance, that the ministers would attend to any thing I had to say, and that any wish of the Right Honorable the Governor General was the same as if it were his own. He replied, that when the king was so friendly, the ministers must of course be equally so.

We remained until half-past six with this minister, discussing various points of business. His Excellency inquired if I wished to take certain orders to Laos myself, and whether I intended returning from thence to Bangkok; I replied I wished to be the bearer of the order to Zimmay, but that my return here depended on the wishes of the king. He replied we were good friends, and I might take the order and return by any way I pleased; if I wished to return here, I might do so. I thanked him for the permission to proceed to Zimmay. After leaving the minister's house we went to the palace of Chow-fa-noi, which is a short way above our residence, on the right bank of the river. It was built by Pya-tack, the Chinese king, who re-established the monarchy, and built a new town here, on the site of the old French factory, after the old city of Yodea had been taken, and the royal family carried off by the Burmese. It is a brick building, and stands in a small fort close to the river, on the angle formed by the junction of the Maha-tchi canal; it was full of pointed gables and cross roofs, like an old farm house in England; it covers a great extent of ground, and has an immense number of apartments and passages, some covered, some open. In the morning, as he was going down the river to get up a mast in one of Pya-pi-pat's war junks, he called at the factory, and requested me, if I intended calling on him to-day, to come about 7 P.M. It was just seven when we arrived at his house, and in ten minutes he came home. He is the second legitimate son of the late king, and will probably



succeeded his half brother, the present king. He is intimate with Mr. Hunter and Captain Browne; the latter has instructed him in observing and finding the longitude, in which he was a very apt scholar; he is easily accessible to all English frequenting the port, and much attached to us. The room we were received in was fitted in the English style, and on the table was a splendid gilded lamp with cut-glass shades, which was made for William the Fourth, the walls were decorated with English prints, and he had a small library of English books, of which the *Encyclopedia Britannica* formed a part. He was kind and cordial in his reception, and familiar in his conversation with us all. Our entertainment consisted of a light supper, coffee, and sweetmeats, after which he went to look at his band in an ante-room; it consisted of twelve or fourteen musicians. Several of the instruments were of his own invention. He moved freely about the room, in which we followed his example. He introduced us to his wife, who is a tall fine woman of Taline descent, of unusually pleasing manners for a Siamese. He had his little son, who was asleep, brought out to us; I have seldom seen a finer child, he is about five months old, and was dressed in a red English frock and blue cap, with a gold band round it; he had been inoculated four or five days ago by Dr. Bradley, and the disease promised to be favorable. The small-pox is raging here with fatal violence; it is treated by the natives by repeated bathing or rather effusion of cold water five or six times a day from the commencement of the pyrexia. Chow-fa-noi also shewed us his jewels, which must be of considerable value; there were three broad gold belts studded with diamonds, the smallest of which, by rough calculation, contained 1300, many of them large and valuable; a box containing thirty-five rings, many of them diamonds of considerable value; he had only one or two rubies, and those inferior ones; the jewels were strewn about the table in perfect confidence. His reception of us was frank and cordial. His servants, to one or two of whom he speaks in English, and in which language they are obliged to answer, stand up and move about his house with freedom. There were none of the nobles of the land present. We took our leave about 10½ o'clock.

*February 20th.*—I proposed, through Mr. Hunter, to meet the Praklang and Chowkoon-booden together, as each appeared to have a separate jurisdiction, and could not give an order on my business without reference to the other. There was no objection made to my proposition. The Praklang suggested that I ought to visit Cromaluang-rak, the king's uncle, the head prince, who would be prepared to see me on Friday; in the meantime, I should have received my letters from Maulmain. I am most anxious to get on a more intimate footing with the ministers, but fear I cannot succeed before all the visits of ceremony are got over. Old Benedito called in the afternoon, and told me privately he had no doubt all my wishes would be complied with; he is however an insignificant old gossip. Coon-Sit came also in the morning.

*February 22nd.*—Called to-day, at 4 P.M., on Cromaluang-rak, whose house is to the south of the palace enclosure, about five minutes walk from the bank of the river. On the way we crossed a new Nât, building by the king; the pagodahs, Kyoung's temple, rocks and small trees, (of which, much is in the Chinese style,) may cover ten or twelve acres. Betwen the walls of the palace and the house of the prince is the race-course, where the horses are exercised, of which there were perhaps twenty gallopping about for our amusement; there were also a small Arab and Cutch horse in gilded saddles paraded, with about fifteen or twenty elephants. Though this is the country of elephants, I did not see one good looking animal; some of them were large, and one with very large tusks we had seen before in the palace. The horses are inferior to the elephants, and apparently for no other purpose than to look at. Here we were detained about twenty minutes, outside the prince's gate, in an open shed, the native Christians, Benedito and Pascal, the Praklang's son, and some Siamese officers whom I did not know, were also present. The prince's house is sadly out of repair, and he is about building a new one. The hall in which he received us, was a low room about forty feet long by twenty-five broad, nothing at all rich or showy about it, except a curtain cloth of gold. He was seated on a sort of low pedestal, like the thrones of the Laos Isobaos, and a white umbrella behind him.

A large concourse of people were collected outside ; on interrogating some of them, they said they had come to see the (Kek Mounng's) visitors. There might be about 100 people, princes and others, in the hall. He asked nearly the same questions as the king, to which the same answers were returned. I complained of the detention of my letters, and said the Mya-won of Camboorie should be reprimanded for stopping them contrary to the custom of all civilized countries. The prince appeared affable and good tempered; but Mr. Hunter, who sees him frequently, says he was distant and constrained, evidently at a loss what to say. The visit lasted about an hour, (the round-about questions and answers occupying nearly all the time) when we were asked to go into a large hall outside, where a table was spread and refreshments offered us and fruit, sweetmeats, the Parklang's coffee-set were again in requisition ; here we remained perhaps half an hour, and then returned home. The visit was altogether one of ceremony; no one spoke but the prince and myself. Mr. Hunter again kindly accompanied me.

*February 24th.*—Yesterday received dispatches from Mr. Blundell. I saw the Praklang to-day, and pushed for the delivery of the Thugs, as they are in his division of the kingdom, and said, I would write with them to Captain Macfarquhar, who would pay the person on delivery, and sent in charge of them, fifteen rupees each, to defray any expence the Siamese government might have been at on their account; he said they should be given up; and remarked that they paid three catties (160 ticals), for each man so delivered, and asked me to give up six Cochin-Chinese, who had escaped to Maulmain. I said that as I did not know their crime, I could not promise their being given up, but that if he could furnish me with a copy of the evidence against them and their sentence, I would forward it to the Commissioner, and in the mean time tell him whether I thought it likely they could be given up; if they were only run-away prisoners, it would be unreasonable to expect them; several of our people came here voluntarily, we did not dream of demanding them; he said if I examined their backs, I would see the marks of the ratan; I told him they might have been punished for faults which was in some sort an

expiation, but certainly did not render them criminals for life; their case was, I believed, very different from the Thugs, who, for murder of the most cold-blooded character, were condemned to imprisonment for life. The subject was then dropped. I introduced that of the Chinese caravan, and requested him to give orders to the Zimmay chief not to prevent them from coming on to Maulmain; he said he had sent for the Zimmay Chow-Hona, and in presence of Mr. Hunter had given him positive instructions on that head, and he had assured him, the Chinese had never been interfered with, but that finding the market at Maulmain did not suit their goods, had, of their own accord, declined going there. I mentioned the facts of the case, which were, that the Chinese from the first had expressed an earnest wish to trade directly with us, and in spite of the lateness of the season, several of them had come to Maulmain, (sent by the head man of the caravan) after my first meeting them in Laos, and so satisfied were they with the market, that a large party had last year come to Zimmay, where they had been prevented proceeding by the Chow-Hona of that place; many of the goods intended for Maulmain not suiting the Laos market, they were obliged to take back with them, or dispose of at a considerable loss.

It was now half-past eleven, and the old gentleman intimated that it was time to go to the palace. I pressed him to settle these matters as soon as possible, as the season was wearing away, and I wished to start for Laos in a few days; he said I should go any way I pleased; if I wanted boats, he would furnish them; if I wanted to go by land, I could do so; and that I should not be detained longer than necessary. The old gentleman was exceedingly affable, friendly, and good tempered throughout the whole discussion. We took our leave, and he immediately got into his boat to go to the palace.

*February 28th.*—In the morning I went to the camp (so called) of the native Christians, who live about a mile above the town. In going there, we went down the river a few hundred yards, and entered a small branch which forms the island on which the town is built; it is not more than perhaps 120 feet wide, houses are built close down to the water on both banks, and the stream, except in the centre, crowded



with floating houses and boats ; several other small branches or canals run at right angles from this through the town, the walls of which are of brick, about eighteen feet thick, and perhaps twenty or twenty-five feet high, following the slight sinuosities close along the banks of the stream, but could only be seen occasionally from the crowded state of the houses on the banks. There is at each angle of the walls a projecting sort of bastion with a double wall, and a turret of flimsy construction, and the whole works seem exceedingly contemptible ; the passage of this branch, which surrounds a little more than one-half of the town, occupied about forty minutes, and about twenty more from this to the Christian location. Every thing about them, except the houses of the chiefs, Benedito and Pascal, was mean, dirty, and disgusting, beyond any thing I have seen in this part of the world, and the character of the inhabitants is said to correspond ; we visited also the priests, both of them Frenchmen, who are highly respectable men in their station. The bishop is just now absent at Singapore. Besides the descendants of Portuguese, who amount at this station, which is called the Cambodea Camp, to 700, there are 1400 Cochin-Chinese Roman Catholics who fled from that country, being persecuted on account of their religion, about four years ago. Though the hovels they live in are miserably small and dirty, yet they are said to be tolerably contented, and find it easier to obtain a livelihood here than in Cochin-China, where they say there are hundreds of families who never knew what it was to be possessed of one coin of the smallest denomination ; they chiefly occupy themselves, I believe, in fishing, though many of them, beg about the town. We remained at Pravie-tssets (Benedito) about two hours, and returned home by the main river. Visited the Praklang after dinner. When we arrived at his house, we found the second Praklang and other officers there as before ; there was a good deal of conversation regarding Bir-mah and England, on which last subject the Praklang, from his intimacy with Mr. Hunter, is better informed than people on this side of the Ganges generally are, though I am certain he does not believe what he has been told of the extent and number of our colonies, the tonnage of our shipping, &c.

On matters of business little was done. With reference to my returning here, he observed I might do as I pleased ; to tell me not to come back, would not be friendly, and to tell me to do so would not be proper. I complained again of the detention of my letters, contrary to the custom of civilized countries, at Camboorie ; he excused the act on the ground that the customs of the Siamese and English differed ; the Mya-won dared not allow them to come on without reporting it to the ministers. I said I had no wish to infringe any of their customs, but requested that whilst I was here, as they knew the people with letters having a pass from the Commissioner of Tenasserim must be coming to me, and that the letters were for the information of the ministers, that he would give orders that they should not again be stopped.

*March 1st.*—A dispatch arrived last night from the Governor of Songora, reporting that the Malays were within two miles of that place with 3000 men, and begging immediate assistance. The Rajah of Ligore though he promised on his departure from this immediately to recover Queda and put a stop to all the disturbance on the peninsula, has not yet left Ligore, and as even Siamese report gives him no more than three thousand men, the truth probably is, he has not half that number yet assembled.

*March 2nd.*—Radsithee and Coon-Sit called this evening.

*March 4th.*—The Praklang sent to tell me that the Taungthoos I left at Neamgben are at Camboorie, and wished to know whether I intended them to come on here ; I told Piadadie to tell him they were merchants, and ought never to have been stopped, and begged they might be allowed immediately to come on if they wished it, as this is a direct infringement of the treaty. I hope I shall now be able to put an end quietly to these absurd stoppages of our people at Camboorie on my next visit.

*March 6th.*—Sent to the Praklang to beg he would allow me to see him for a few minutes to enable me to answer my letters and dispatch the messengers to Maulmain, who have now been most unexpectedly, and much to my annoyance, detained eleven days. As this was the day till which I was requested to wait, on my last message to him, I was much disappointed about four

o'clock to get a message from him by an old Portuguese begging me to give him to-day and to-morrow; that the preparation and embarkation of the troops for the Malay expedition had fully occupied all his time. I fear I shall still be disappointed, and obliged to close my letters without any positive information on certain points on which I depend for answers from this most dilatory government; it will take a month to reach Zimmay from this, and from thence it is twenty-three days more to Maulmain, which will bring it to the middle of May, (supposing I even start on the 10th of this month, which is the earliest I can possibly expect, and have no detention in Laos,) before I can possibly reach Maulmain.

*March 7th.*—The force for the reinforcement of the Rajah of Ligore having dropped up with the tide last night for his Majesty's inspection, sailed down again to-day, after firing a salute of a few guns, and is considered as having started, though they will not finally leave for two or three days. The first part of it which I saw passed down about 12 o'clock, it consisted of twelve war boats, two large and three small junks. The largest, a very fine vessel which the Rajah of Ligore was six years in building, and which he presented sometime ago to the king, was commanded by the commander-in-chief, Pra-si-pi-pat, the Praklang's brother, it was very gaily decked with red flags and streamers, and himself habited in a red dress, with a good deal of embroidery, looking at the distance from which I saw it, much like the war dress of the Burman chiefs; on his head he had a broad brimmed beaver hat, with a sort of gilt spire attached to the top of it; he had a splendid gilt cabin erected above the taffrail, and a chatta bearer with a large red chatta shading him from the sun. The smaller boats were towing his junk, and pulled by the soldiers, all of whom were dressed in red jackets, or shirts, and white trowsers. There might be perhaps 1,500 or 2,000 men in this part of the fleet, and one or two junks sailed down afterwards with perhaps 500 or 1,000 more, called by the government 5,000.

There is a deficiency of transports, though the king has borrowed every junk he could get hold of, many of which will probably never be restored again, as the people put in

command on such occasions sometimes sell them or run off to the eastward, instead of bringing them back to Bangkok. The troops with their new red jackets certainly looked tolerably formidable, though more in appearance than reality, many of them never having fired a musket in their lives, and it is also the general's own debût in a military capacity. It is said, I know not with what truth, that a little jealousy on the part of the king (to whom he is related) obtained him the high distinction. A few months ago, his son and eight others (four women, amongst whom was the guilty fair one, and four men) were beheaded for an intrigue with one of the palace ladies, and for causing an image of the king to be made and running a javelin through its heart to cause him to turn away this woman. They were tried by the fathers of the two culprits, condemned, and beheaded. It is said, the king wished to spare them, and asked their fathers to be security for their future good conduct; but fearing the king might think they supposed the punishment undeserved, or some other motive equally Siamese, or slavish, they refused. It is said, the king supposes Pra-si-pi-pat to be discontented, and hopes the Malays will give a good account of him, as the commander-in-chief; however, he chosés his own position, and as putting himself voluntarily where there was a chance of danger would be viewed as utter folly, he will probably return. I should think, however, the king has little reason to fear him, and I doubt if there be any ground for the report. As the Praklang's anxiety about the equipment of the troops is now at an end, I sent to him this evening (Mr. Hunter was kind enough to go), and begged, I might now have the boats to dispatch the messengers; he promised that I should have them to-morrow, and wanted to know why I was in such a hurry!! I yesterday sent one of my people overland to Nak-outcha-thee to look at the elephants, he returned this evening; the distance is about eighteen or twenty miles, and after crossing two small canals near Bangkok, the road is perfectly good and dry, as I expected he would find it.

*March 8th.*—Being disappointed in receiving the boats, I called on the Praklang (whom I had not seen since the 28th ultimo) this evening, he said he had given orders about the boats, and



supposed I had got them ; those which had brought the people from Camboorie had been detained for them, and the man in charge of them was ordered to wait on me. The Praklang offered to deliver the Thugs over to me, but I could not take charge of them ; I warned him of their character, and told him that they annually in India committed many hundreds of murders, where more care was taken to prevent it, than could be done in Siam. I told him I was anxiously waiting for the letters, and (in answer to his question) that I wished to start on Monday or Tuesday, (the 11th or 12th). He told me the king himself, Cromaluang-rak, and Chowkoon-booden would each return an elephant for the presents I had brought them.

The Jaung-Kieuk of the Gyne district, who had accompanied me with a view of obtaining the release of his wife, (who had been separated from him at the emigration of the Talines from the district of Martaban in 1816, without his knowledge or consent, as he was at the time of the rising absent with the Mya-won of Martaban, some miles from the town), who by Burman law, and I doubt not Siamese law also, ought to be given up to him, has been making all the interest in his power to get this government to allow her to accompany him to Maulmain ; amongst others, Mr. Hunter has repeatedly spoke to the Praklang about her, and as he would give no answer one way or other, I this night spoke to him for the first time on the subject, explaining at the same time, that it was a private request ; he told me she might go if she had the leave of the person with whom she now lives, and was willing to go, but that he had been told she was not willing. I said I had seen the woman myself, and she had told me she was most anxious to return, as her mother and relations were at Maulmain ; he promised to inquire into the subject, and we took our leave about 8 P.M.

*March 9th.*—About noon, dispatched the boat with the letters, giving the messenger ten rupees for the boatman, if he reached Takanoon in ten days. In the afternoon Mr. Hunter was sent for to translate the letters to Mr. Prinsep and the Commissioner, which are almost transcripts of those of which I was the bearer. The force destined for Sangora is still in the river, about five

miles below the palace. Pra-si-pi-pat is said to be full of trouble. They discovered yesterday that they had forgotten to embark their ammunition, and in the night all the soldiers from ten of the boats deserted. Though so many muskets have been imported within the last few years, so little care is taken of them, so many have been destroyed by white ants and rust (they are never cleaned) that they are very imperfectly supplied, and for appointments they appear to have none; on the whole, it would be difficult to imagine a people more contemptible in a military point of view, than the Siamese.

*March 11th.*—Sent Piadadie to the Praklang for my letter and orders to the Laos people; the clerks told him they had brought them to me, and I had refused to receive them. The Praklang was too much taken up with the dispatch of the fleet, to give much of his attention to my business. They find now they have no water, and nothing to put it in, and are obliged to borrow some casks from Mr. Hunter.

*March 12th.*—Sent to the Praklang to propose calling on him this evening, and found he had gone to Pack-nam to endeavour to get the fleet off, from whence he will not return till to-morrow. Received yesterday from the king 240 ticals for another month's expense.

*March 13th.*—Piadadie came over this morning, and on the letter to the Laos chief being translated, I found it was not entirely what I required. Pra-Sooren, an inferior officer, (called also Kaloung, or king's slave) and one of the king's personal attendants, (ma-lik, little dogs) are to go up and see matters settled in the Laos country, and on no account is a misunderstanding to be allowed to take place. At about half-past five I went over to the Praklang with Mr. Hunter, who has always been kind enough to act as interpreter, Pra-see, Chowkoon-booden deputy, and one or two other chiefs more immediately connected with the Laos country were present. The Praklang asked me if I had made up my mind when I would start. I said, I had been some days wishing to get away, as the season was getting late, and had now come to speak to him about the orders to Laos. I thought also it was right that I should have an audience of leave from the king, and should take leave of the

prince and Chowkoon-booden ; he said neither Mr. Crawford nor Mr. Roberts (the American envoy) had an audience of leave, and that it was not at all necessary ; and that the prince and Chowkoon must have notice before I visited them ; that as my business was principally in his own department he saw me at any time in a friendly way. I said, though disappointed of not again seeing his Majesty, of course I must be guided by him, and wished to pay my other visits, so as to get away by the 16th. On starting, he said he did not wish to detain me, as he wanted to go down again to the fleet, and could not leave whilst I was here. He then told Radsithee to inquire when the prince and Chowkoon would see me. I requested him to give an answer about Jaung-Kieuk's wife ; he said she might go, but she had some debts here which she must pay. I told him the woman denied owing any money, but stated she had a good deal of property and some slaves ; he said the slaves could not accompany her, but he knew she had debts, part of which he believed had been paid, and part was still due. I begged him to order the business to be settled, as I wished to start on Saturday. He wished me health, a pleasant journey, and all kinds of good wishes, and said he should think of me when I was gone ; indeed, that he thought of me every day now, and always sent me something to eat ; and concluded by complimenting me on my knowledge of Siamese customs. I reciprocated his good wishes, and said I was obliged for his attention to my private wants and comforts ; and we took our leave amidst expressions of his esteem. On our return home we found the prince Chow-fa, who remained an hour ; and about 10 P.M. Radsithee came in and told me the prince Cromaluang-rak was too unwell to see me. To-morrow is the commencement of the new year, and the Praklang told Mr. Hunter to-day he knew the prince would not give up his plays to see any body. The Chow-pra-koon-booden said he would see me on Friday evening. I have been fortunate in obtaining permission to proceed to Laos, by which journey I hope I shall be able to throw some light on the geography of 5° of latitude in this country, hitherto never visited by a European ; and the very act of traversing the country, when done without violence

to any of their prejudices, will tend to break down the hitherto insurmountable objection to any intercourse with the interior of the kingdom.

*March 14th.*—Went round part of the town, and along an excellent bazar well supplied with fish, vegetables, meats, manufactures, and drugs; in short, a continued line of shops for a mile and a quarter down the left bank of the river, and notwithstanding their religious objections to slaughtering bullocks, the same favour is not extended to pigs, of which it is said, not less than two or three hundred are daily slaughtered in Bangkok alone. A few paces off the main street was a cage for some of the public women, with a row of twelve or fourteen small rooms, perhaps six feet by four, opening into a common verandah of about four feet wide, and perhaps six feet high, closed in front with bars like the cage of a wild beast. After breakfast, I sent to the Praklang for a copy of the Laos letter, and was fortunate enough to catch him just on the point of starting for Pack-nam; he gave a copy of the letter, and said he had given orders to the Pra-pi-pat, his deputy, and Pia-taip to settle the Jaung-Kieuk's business. Radsithee came in the evening to say, Chowkoon-booden would prefer seeing me to-morrow morning, and knowing, that he is looked on as a man of great ability and has much influence in the council here, I took an opportunity of letting him know my sentiments.

*March 15th.*—Crossed over to Chow-pya-koon-booden's this morning, and found him with his deputy and some other officers engaged in the important duty of looking at some dancing girls, with a band of music close to him, and about sixty people each knocking together two pieces of hard bamboo, and I should think not less than 2000 spectators; the noise was of course stunning. We were seated on chairs below his dais, on which was his deputy crouched at the foot of his couch, and Radsithee, who acted as intermediate interpreter, though Mr. Hunter speaks familiarly with him on ordinary occasions. He asked me at entering, after returning my salute, when I intended to start; I said it was my intention to have started to-morrow, but I was detained for the letters to the Laos chiefs. The banging and noise of the bamboos and music continued; we



could scarcely hear ourselves speak ; we sat a short time to look at the actors, and taking leave of him, we returned home. About ten girls were enacting a play ; the scene was laid in a wild forest in Java, with rocky mountains at one side of the theatre, constructed of boards painted blue and red, and a few branches and artificial flowers stuck about them, with steps concealed, at least where we sat, for the actors to climb amongst them. The theatre had no stage nor any shifting scenes, but was covered in, and had raised standing room for the spectators in rows above and behind each other, as in the Roman theatres. The piece represented a princess, who by philters was induced to run away with some low person. The old man seemed to take a childish interest in the thing. He is the most famous general in Siam, and distinguished himself amongst the Siamese in the last Cochin-Chinese war. After coming from his house we went for a few minutes to the house of the prince Chow-fa, where we met Mr. Jones, one of the American Missionaries. From the prince I got Mr. Crawford's account of his mission to this court, which he had understood ; he did not, however, make any comments on it. I asked him, in return for the map I had given him, for any geographical information he had regarding Siam ; he said none existed, and expressed his surprise at the extent and correctness of Mr. Crawford's information. He said he was anxious to get the king's leave to make a map of the kingdom from survey, but as he was the only man in the country who could do it, he could expect no assistance.

*March 17th.*—Received the letters for Mr. Prinsep and Mr. Blundell ; the former is in a stand representing a lotus flower, the latter in a red silk bag, and the same large boats which brought us from Tat-Chin, were sent for our conveyance to Nak-outcha-thee. In part for the sake of seeing more of the country, and in some measure from necessity, as the water is so low in many parts of the Zimmay river above the junction of the May-nam that much time would be lost at this season in digging away the sand, I have made up my mind to proceed to Nak-outcha-thee by water, and thence by land to Zimmay. I have been furnished with a passport from the ministers bearing their official seals, and stating that I had come with presents

from the chief of Bengal, and was proceeding to Yahine, Zimmay, Lagon, and Lebong, and ordering all the different chiefs of towns to pay us attention, and supply us with all necessaries. I conceive it might be turned into a sort of roving commission, as the Praklang told me when inquiring about the road, that he knew nothing about it, he had never been there, so no particular chiefs are mentioned, but to all we may fall in with. The person who is appointed to go with me to Nak-outcha-thee came this evening, and told me it would be necessary for him at this season (new year) to renew his oath of allegiance, so that I fear I shall not be able to get away to-morrow.

*March 18th.*—The Praklang returned last night from Packnam where he had been to see his brother and his fleet off, and as the detention of the people to swear allegiance to-day had detained me, I sent the port captain to him to say I wished to see him to take leave this evening, as I intended to start early in the morning ; he excused himself (as I expected) on the plea of indisposition, but wished me a pleasant journey, &c. In compliance with the Praklang's instructions, Pia-pi-pat and Pia-Taip on the evening of the 14th sent for the Jaung-Kieuk and his wife to the Praklang's hall of justice, to determine whether, and on what terms, she would be allowed to accompany him. It is one of the highest courts of law in the kingdom, and I thought it too good an opportunity to witness a trial to be missed, and went down to the hall privately ; the judge, Pia-pi-pat, gave me a seat on the bench, that is, on the floor beside him ; plaintiff and defendant set themselves down before us, without regard to any particular arrangement, one or two other low officers were seated near the litigants, and several other people lolling about the floor near us. The place was the passage up to the Praklang's house, and looked like any thing, according to our notions, but a hall of justice. All the people spoke at once, some laughing and joking in the middle of the proceedings. The decision was, that the woman should go as a matter of favour, but that she must pay 755 ticals debts due, and 319 ticals lawyers' fees. On some old law pleas this last sum, however,

she was told should be remitted, but the form of a reference to the Praklang must be gone through; and this evening I told Piadadie to ask him to give an order on the subject.

*March 19th.*—Left Bankok at noon, and in fifteen minutes (against the tide) entered the creek just below Chow-fa's palace, which communicates with the Soop-Ham river; and in ten minutes reached the landing place on the left side of the creek, where the road to the town of Nak-outcha-thee commences. Here one boat being much crowded, I landed fourteen of the people, with a pass from a writer in the department who accompanied us, to proceed thither by land. At 2 P. M. the tide set so strong down the stream, that we were obliged to halt till 5 P.M., when we started again, and at seven were overtaken by a boat with a present of dried fruit and pickles from his Majesty; after taking which on board, we pulled on for the greater part of the night.

*March 20th.*—At 6 A. M. reached the new fort and town of Moun-g-tat-chin, where we breakfasted. The Myo-won, a very intelligent person, came to the zeat after breakfast, and expressed much interest about our present position with the Birman. We left Tat-chin at 10 A.M., but were obliged to come to a halt at eleven, from the strength of the tide. At 3 P.M. the tide being nearly done, and having little but the force of the stream to contend against, we started again, and at 4 passed the branch of the river which running westerly communicates with the May-klong. On the angle of the right side of the bifurcation stands the old town of Tat-chin, even now a very long village, containing four or five hundred houses in a row, two or three deep, along the bank of the main river, and this branch. At 8h. 20m. entered, on the left side of the river a small creek, which cuts off an angle of it, so narrow that at one or two turns we had some difficulty in getting the long boat round. There were two or three small villages on its banks, and a few cane fields, but, generally the banks were low, and covered with dunie or nipa. From this, at 11 P.M., we again entered the main river, and pulled on for a great part of the night.

*March 21st.*—Start at 5 A.M., and at ten halt an hour for breakfast, (myself and people having had no dinner yesterday,)

that of the boat people was brought ready cooked from Tat-chin. At 4h. 30m. landed at Nak-outcha-thee, where our people had arrived yesterday. I found the Palat and Yenkabot, (Tset-Kay and Na-Kan), waiting to receive me, the writer who accompanied us, having arrived an hour or two before us. I requested they would this night hand over the elephants to us, as I wished to see all right now, and start at daylight in the morning; they wished to put it off till the morning, but as I insisted, they sent people to bring them in. I told the writer I expected he would see, that a guide was furnished to the next halting place, as I could not, after the falsehood they had told me here on my way to Bangkok, put any trust in what their people said; it would disgrace the king and nation of Siam, when heard in other countries, that men at the head of a town condescended to such meanness. They attempted some explanation, but did not appear at all ashamed. About ten o'clock the people came back, and said one of the elephants had broken his hobbles, and that two of the remaining three had gone after him, so that they could not give them over to us this night; which will I fear cause another day's detention.

*March 22nd.*—Received the elephants to-day at 12 o'clock, which the government return for the presents brought, none of them remarkable for their appearance, and I did not receive the howdahs, which were in a most rickety condition, till about 7 P.M. Had a visit this afternoon from a lad dressed in a blue jacket and cap, white stockings and shoes, (and half a dozen other lads in the same costume, except the shoes and stockings) who pretended not to be able to speak Siamese, and as he could not speak any other language I was acquainted with, our communication was of course extremely limited. After he was gone I learned that he was the son of the priest, the eldest legitimate brother of the king.

*March 23rd.*—Ban-Sao, four hours fifty minutes, thirteen miles. Left Nak-outcha-thee at 6h. 25m. this morning, and travelling along the bamboo jungle, (which ran to the N. E. of our march on the way to Bangkok,) reached this place, having halted some time for the elephant at noon. There were a few inhabitants in the immediate vicinity of the road, the villages lying along



the edge of the jungle, near the plain which runs down to the head of the Gulf, as before mentioned. At 7h. 45m. we crossed a muddy nullah, and at 8h. 5m. a larger one by a bridge; at 8h. 15m. passed Ban-pa-neat; at 9h. 15m. Banroi; at 9h. 25m. Bon-ta-ko; at 9h. 55m. a larger village, say sixty houses; and at 12 halted here. The elephants came up at 1h. 35m. Last evening we heard an unusual rumbling noise, exactly like distant artillery, and in the night felt three or four shocks of an earthquake; the weather has been hot and sultry for some days, and yesterday at noon the thermometer stood at 106° in the tent; and some of the people from the heat did not come up till seven o'clock in the evening. We have had several sick for the last ten days, two cases of fever, one of small-pox, and one severe diarrhœa.

*March 24th.*—Ban-soap-la, four hours, twelve miles. Started this morning at 5h. 45m. and almost immediately entered the bamboo jungle, quitting the plain on the edge of which we halted last night, and have not seen it since. The road throughout the day, and since 8h. 5m. yesterday, has been good, and practicable for the carts of the country, one of which, drawn by buffaloes, hired by some of the traders has accompanied us. Water is scarce at this season, and what there is, is bad. At 6h. 25m. passed Bancong of fifty houses; at 6h. 45m. a small plain with a little cultivation; at 7h. 15m. a Laos village, of about thirty houses; at 7h. 25m. another of the same people, of ten houses; at 8h. 15m. Bantoom of ten houses, inhabited by Siamese; at 9h. a plain of some nine or ten miles circumference, apparently fertile, but from the great depth of the water in the rains could not be brought under cultivation. At ten we halted here near a Laos village of fifteen houses, about one long day's march west from the Nak-outcha-thee river, which between this and Soop-Ham winds away east. The country continues thinly populated, notwithstanding the endeavours of the Siamese to make it less so, by locating here the unfortunate prisoners from Weeang-tchan, in southern Laos, which was taken by the Siamese in 1826 or 27, and the most horrible cruelties practised on the miserable inhabitants. Isoboa was kept during the short time he survived in an iron cage, with different instruments of torture along side of him, and obliged to proclaim, that

the king of Siam was merciful, and his punishment deserved : being an old man, his brutal enemies were not long gratified by the sight of his sufferings.

*March 25th.*—Nong-Keam, 5h. 20m. fifteen miles. Started at 5h. 25m. and continued our march through the same description of country ; viz. nearly a dead level soil, and a sandy loam covered with bamboo jungle ; at 6h. 35m. at Banyong, a small village of Siamese. Cross the water, the banks of which we left at day-light, and which I now find is a stream uniting itself with the Nak-outcha-thee, though it was so choaked with water lettice and other aquatic plants that no stream could be discovered in it. Here we obtained a fresh guide, and proceeding a few miles, entered a tree jungle, more open, which continues till 10h. 30m. The village Kalay-Book, of ten houses, from whence to this place, Nong-Keam, a muddy swamp of bad water, which we reached at 11h. 30m.; the jungle is again bamboos. We have seen no cultivation to-day, and both the small villages we have passed clear the jungle (which only grows on grounds slightly elevated), for their paddy, and do not cultivate the plains which have too much water on them ; one in this vicinity is only now becoming dry. The people had been employed in taking fish left in the mud, and appear to have been very successful : at 9h. 30m. we passed the Nakan (Yenkabot) of Nak-outcha-thee in the jungle ; he said he had been sent by the Myo-won to see to my provisions, and that the people did not take me by the western road, on which water is very scarce at this season ; he came up the river, which is distant east six or seven hours march. The people of the village (Kalay-Book) where he slept last night, were obliged to furnish him with a large portion of their fish. Weather exceedingly hot, thermometer at 2 P.M. 130° in the sun. The elephants did not come up till 3 P.M.

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*Points in the History of the Greek, and Indo-Scythian Kings in Bactria, Cabul, and India, as illustrated by decyphering the ancient legends on their coins.* By CHRISTIAN LASSEN, Bonn, 1838.

The translation of this interesting and erudite work has been undertaken for the Journal by Dr. Roer, of the University of Berlin, a gentleman whom high acquirements, and sound knowledge of general literature, render fully competent for the task. The critical nature of much of the work calls for as close a rendering of the original as may be possibly given with reference to ordinary difference of idiom. Should the style therefore appear at times too German, it must be remembered that grace of expression has been voluntarily forfeited to secure what is so infinitely more valuable---as indeed it is the only real merit of a translation of this kind,---accuracy and fidelity as respects the original.

This work will, it is hoped, be generally welcome to our readers in its present form. It is invaluable to the historical student, and numismatist, while the extreme ingenuity exhibited in treating the subjects discussed, is such as to command the attention of the general reader. Founded as it is in a great measure on the researches published in this Journal by JAMES PRINSEP, we must receive it with pride, as a tribute to his genius, his singular intelligence, and indomitable zeal for the cause of knowledge, while with a more chastened feeling, we see in it honourably preserved the memory of one, who was for so many years the chief ornament of this Society, the recorder of its transactions, and the most eminent of all its members in many branches of science.

The translation will be continued in the Journal till the work is complete, a hundred copies of each paper being struck off above the number required for our circulation in order to supply the whole in the form of a book, to those who may desire a readier means of reference to its contents than the Journal might afford. I should mention, that I owe the notes signed H. T. P. to the kindness of Mr. Henry Thoby Prinsep.



## INTRODUCTION.

Among the different empires which were formed on the dismemberment of the conquests of Alexander the Great, none were placed in a position more remarkable and peculiar, in a geographical and historical point of view, than the Greco-Bactrian kingdom, and the Indo-Grecian kingdoms, which found their origin in it. These were called into existence, when the course of those great historical events was already complete, by which the plastic, and intelligent genius of the Greeks had been united to that of the imaginative and pious, or according to the view of others, superstitious Orientals, and by amalgamation of the west with the east, produced a new formation of historical relations, viz., Hellenism. Though the Greek in Bactria proved still the strenuous soldier, inspired with the remembrances of the exploits of Alexander the Great, and his companions, yet he was no longer the rugged Macedonian of the old campaigns, full of local nationalism: for he had become, in the luxurious capitals of the Seleucidan kingdom, already too well accustomed to Oriental manners and modes of worship, and when proceeding from the banks of the Tigris and Orontes he reached the eastern parts of the Greco-Asiatic empire, he met there with natives already in a great degree acquainted with his peculiar customs and institutions. Thus the wounds received in the first fierce shock of jarring contrasts were already beginning to close.

Now as by the establishment of the Bactrian empire, the mighty process involving the formation of a new era was roughly completed, elements must have been admitted as agents in that process from the remotest east of Bactria and Sogdiana, congenial to those countries. The Bactrian was, as an inhabitant of the highland of Iran, far other than the Oriental of Syria, Egypt, or Asia Minor, and he was, even among the tribes of Iran, of a peculiar stamp. If any where, Zoroaster's doctrine of light must here have been preserved most purely, and thus in the amalgamation of Oriental and Hellenic character, Bactrian Hellenism must have been formed from the beginning in its own way, a smaller circle in the great revolution of the east.



But when the Greek power passed the Indian Caucasus, a new contact of the Greek character with the Oriental was the necessary consequence; there it met with an essentially Indian civilization, seldom affected by any foreign influence.

After Alexander had flashed like a radiant meteor through those Indian regions, they soon returned under the sway of Indian rulers, and this happened at a period when the power of a new Indian religious doctrine, viz. the Buddhistic, was about to propagate itself with zeal in this direction, together with political dominion. In consequence, the Greek kings of Bactria found in the valley of the Cabul river the peculiar characteristics of India more vigorous and more deep rooted than Alexander did before, and Hellenism\* therefore was compelled to begin anew in a narrower circle, and on new ground, the same career it had already run through in a larger one. However, time and strength were wanting to carry out this last experiment. For as the Greek character, at such a distance from the reviving influence of its home, could not manifest itself in these remotest regions with the same degree of vigour as in the more western spheres of its activity, so it was here most early overthrown.

With the dominion of the Scythians over Bactria and on the borders of the Indus, the political influence of the Greeks was abolished for ever, and in the sphere of art that influence is only obvious in efforts, waning more and more, though it may be traced even among the Scythian Nomades.

Thus Bactria and the country to the south of the Caucasus appears as that territory in which Hellenism was first restrained from spreading to the east, and Asia proved here triumphant against the Greeks, but only as destructive of their systems, not as creative of others. For a longer period Greek influence continued to prevail in the empire of the Arsacides, the friends of the Greeks, who did not engage in warfare against Greek civilization, but only against the Roman spirit of subjugation, while the Sassanides called in the spiritual power of a revived

\* NOTE.---It is proper to remark that this word is used in a peculiar sense by German writers, as referring to that moral and social state consequent on the union of Greek and Asiatic character at that period.---TRANS.

religious doctrine to assist them in general opposition to all attacks from the west.

Upon no other ground than the above mentioned, on both sides of the Indian Caucasus, have the various forms of doctrine and life, which antiquity has produced, approached each other so nearly and so immediately, in successions alternately attractive or repulsive, vivifying or annihilatory. In Cabul the paths cross, which lead down through regions more and more torrid eastwards to tropical climates, which pass through Arachosia westwards to the mountain-valleys of the Iranians, to the plains of the Semites, and to the coast of the Javanese Sea, which traverse mountains of eternal snow northwards to Bactria, and as they separate, give the caravans a free passage to the pasturing plains of Tartary, to the remote towns of the peaceful Seres, and to the infinitely varied nations of the west; there met the worshippers of Zoroaster and Brahma, the apostles of the Buddhistic quietism, and the artists who opposed the plastic forms of the Hellenic gods, to the grotesque symbols of the east; here came together the cautious Banian with the merchant from China; and in the royal armies, Hindoos upon their elephants and the bowmen of Scia halted near the serried Macedonian phalanx and the well ordered squadrons of Bactria.

On this cross road of historical formations was the Greek placed in Bactria. He was privileged at this post, most advanced to the east, as it were, to open with the right hand the Vedas of the Brahmans, and the Nosk of the Mazdajasnes; with the left, to shake the locks which closed the gates of the great Chinese wall, and the entrance into the empire of the "Central land." In our days has the western world first achieved a similar position; from a far greater distance indeed, yet though with infinitely more increased, and multiplied means, perhaps not with greater success? neither has the Chinese empire yet become more accessible, nor has Indian heathenism lost even an inch of ground.

These intimations may suffice to bring to mind the importance as respects universal history, which might be claimed for the history of the countries at the borders of the Oxus

and the Cabul river, from the time of the death of Alexander the Great to the expiration of the dominion of the Sassanides: on the other hand the succeeding history of these provinces under Mahommedan sway, is as cheerless as the Arabian desert.

The interest and importance of the Bactrian history will scarcely be disputed, although it appears far from being possible to trace this history, not in general shifting intimations, but in clear, lively, and distinct outlines; for our information about it is in inverse proportion to the importance which the Bactro-Grecian empire ought to enjoy in history. Bayer's\* learned treatise has long ago proved, how little the Greck historians thought it worth while to pay attention to the fate of their own countrymen in the distant east. The geographical work of Strabo would be infinitely more valuable for the historian, if he had stated such facts as he knew, instead of giving some few detached, and confused notices on the Bactrian kings. I for my part, would willingly resign for this all his discussions on the Curetes, and many similar things.

Thus this history was hitherto only the subject of the laborious diligence of the learned collector, not of the narrating historian, and it will probably remain for a long time in this state; however, every hope of acquiring at a later period a firmer base and a more fertile field of inquiry is not lost. This hope rests upon the discoveries of the last few years, as well as upon the supposition, that their mine may not yet be exhausted.

Just a hundred years ago Bayer signed the preface of his acute treatise, and during the ensuing eighty years nothing appeared, that could have corrected or enlarged in any essential point his investigations. The history of the Bactrian Hellenes continued to be a catalogue of mere names of kings; a catalogue, as destitute of facts as laboriously arranged, and scarcely plausibly complete.

The last decad of years, and chiefly its latter half, has brought to light new monuments of that history, so unexpected and so valuable, that the hope above alluded to, seems not to be quite

\* *Historia Regni Græcorum Bactriani.* Auctore Theophilo Sigifredo Bayero. Petropoli, MDCCXXXVIII. 4to.

fallacious. The external outlines of the Bactrian empire, and of those Indian states that originated in it, come out already more distinctly in connection with many detached facts of their internal formation. From things scarcely noticed, while the loss of written accounts on the fate of those empires, viz. the Bactrian, and the Indian, (for more to suppose, there was no reason) was lamented, even from those neglected things we have derived that unexpected benefit, and this from a quarter whence it was least hoped for. There have been found coins of those very kings at the seats of their former dominions in Bactria, on the banks of the Cabul river, and in North-western India. These are the most authentic sources we can desire, and what assistance coins may supply, where written accounts do not exist, has long been evident from the history of the Seleucides and Arsacides.

It is the design of the following pages to examine those newly acquired relics, in a light under which they have been hitherto looked on as least likely to afford results to the historical investigator. I do not intend to relate here the history of these newly cultivated numismatics, chiefly because my work is not to be a numismatical treatise. It is rather for the numismatical inquirer, who may hereafter compare all the coins of the Bactrian and Indian empires, and the Greek kings, to relate that history. Here the following outlines may suffice.

Since Bayer wrote, and before the last rich discoveries, some few single coins arrived in Europe by different ways, and were then published. Being merely unconnected, and scarcely supplying single deficiencies, they still excited the hope, that by degrees so much might be collected, as in time to yield more important advantages:—thus the coins received through Russia, which Koehler in Petersburg, and Tyehsen\* at Göttingen have described, and likewise those which were previously collected by Tod in India, and afterwards published in England.†

This state of things continued till the year 1834, when

\* The latter in the *Comentt. Recentt. Göttingg.* v. vi. ct. phil.; the former in detached little treatises.

† In the transactions of the Asiatic Society of Great Britain and Ireland, vol. i. p. 313.



the celebrated French academician, Mr. Raoul-Rochette, published some new coins of the Greek Bactrian kings, and their Indo-Scythian successors, which were received by way of Russia.\*

While he was editing that learned work, those investigations and discoveries had been already made, which have so much enlarged our knowledge, and will probably furnish us with still ampler stores.

At that period Burnes had already achieved the journey, by which the Indian Caucasus and Bactria were again opened to us. Nor had his journey been unprofitable for Bactrian numismatics, as the appendix to his well known work proves. But all these detached acquisitions are inferior to those which were effected at the same, or the immediately ensuing period in India; we shall briefly mention them. Three nations share in them.

The generals Ventura and Allard, as well as another officer, M. Court, three Frenchmen in the service of the Raja of the Sikhs, were first favoured with a rich crop by collecting on the spot, but chiefly by digging in the tombs which are called *topes*, particularly in the tope of Manikyala. An Englishman settled in Cabul, Mr. Masson, made further collections in the ruins of ancient towns of that country, out of hill-tombs, and by zealous inquiries in the bazars; at the same time a German from Vienna, Dr. Martin Honigberger, who travelled much about in the East, was successful in collecting by the purchasing coins and opening *topes*. These rich and surprising discoveries, published at short intervals, have excited among the English in India an increasing ardour of investigation, and the number of collectors is already too great to publish here the names of all. Upon these discoveries, and upon the hope of extending the inquiries to yet untouched seats of former civilization, is based the confidence, that our acquisitions are not yet closed.

\* Notice sur quelques médailles grecques inédites, appartenant à des rois inconnus de la Bactriane et de l'Inde, in the Journal des Sav. 1834, p. 328. Here are likewise enumerated the numismatic acquisitions made from the time of Bayer up to that period.

It will be necessary to specify more accurately the writings in which these discoveries are described, and the coins represented.

Mr. Masson has described his discoveries in three accounts,\* his statements being of singular value, concerning the places of discovery, and the geography of some points in Cabul. His collection contains already more than 7000 coins, not all of which, however, refer to the Bactrian Greeks and to their Indo-Scythian successors. The interpretation of the coins, and the inferences joined to it, prove indeed, that Mr. Masson has not enjoyed a learned education; he is beside destitute in Cabul of all scientific materials; grateful therefore for such a laudable expenditure of time and labour, and for such a noble zeal, we shall not criticise his deficiencies, and willingly receive from him all that is capable of proof. Mr. Masson, I believe, served first in the artillery, and he knows certainly much better how to deal with numismatic inquiries, than most numismatists would know how to serve a gun.

The most instructive accounts from India on the newly discovered monuments of the Greco-Bactrian and Indo-Scythian period, we undoubtedly owe to Mr. James Prinsep, Secretary to the Asiatic Society in Calcutta. He has communicated to us continued accounts of all new discoveries, has carefully and accurately edited the coins, and has, with great diligence and acuteness, tried to explain them, and by demonstrating the connexion between the Indian and the Indo-Scythian numismatics, first established an entirely unexpected new and important fact. His decypherings of the native medalography, and his interpretations of the native legends in Greek characters, leave to succeeding inquirers only the task of rectifying and defining more precisely a few isolated points. He deserves the higher praise, as he is his own teacher in the province of numismatics, originally foreign to his studies. His beautiful discoveries in the old Indian paleography, concern, more nearly than he perhaps presumed himself, the explanation of the Bactrian coins, and we are entitled to expect still richer contributions from his ardour.

\* In the Journal of the Asiatic Society of Bengal, vol. iii p. 152, with engravings, which leave much to be desired.

By his treatises, published in the above-mentioned Journal, we are best able to observe the course, and the gradual increase of those discoveries.\*

The collection made by Dr. Honigberger, as well as that of General Allard, and a portion of Ventura's collection, have been brought to Paris, where Mr. Raoul-Rochette edited and described them.† Mr. Raoul-Rochette is so well known to all European learned men as a solid and acute inquirer into antiquity, as well as an experienced and judicious connoisseur of ancient art, that I need hardly declare that the explanation of those coins could not have been intrusted to more skilful hands. He who is not a numismatist, will be doubly obliged to him for the exactness with which he exhibits every trace of historical references, preserved in the coins.

Though the Germans could not share in editing the coins, yet they have been fellow-labourers, as well in the collecting, as in the interpreting of them. I have to mention here two learned men,—Mr. K. O. Mueller, at Göttingen, who had already published‡ a detailed account, full of striking remarks, on the newly acquired coins. But of much greater importance is his lately published treatise on Indo-Grecian coins.§ It is an example as clear as solid, of the new results which the history of those countries has gained by those coins.

\* They are chiefly the following, vol. III. p. 313. On the coins and relics, discovered by M. le Chevalier Ventura, in the tope of Manikyala. P. 436. Continuation of observations on the coins and relics, &c. at the same place, p. 562. Notes on the coins, discovered by M. Court, vol. III. IV. p. 317. Further notes and drawings of Bactrian and Indo-Scythic coins; at the same place, p. 621. p. 668. On the connection of various ancient Hindoo coins with the Grecian or Indo-Scythic series. vol. V. p. 548. New varieties of Bactrian coins from Mr. Masson's drawings, and other sources; at the same place, p. 639. New varieties of the Mithraic or Indo-Scythic series of coins and their imitations; at the same place, p. 720. New types of Bactrian and Indo-Scythic coins.

† Supplément à la notice, etc. Journ. des Sav. 1835. Deuxième supplément à la notice, etc. at the same place, 1836. Both likewise in a separate edition, after which I shall make the citations.

‡ Goettingen Anzeigen. 1835. No. 177. p. 1761.

§ At the same place, 1838. No. 21. p. 201.

Dr. Grotefend, from whom we have since received an excellent essay on the decyphering of the Celtiberic alphabet, had proved already, by his work on the unknown writing of the Bactrian coins,\* that he possessed the zeal and talent to aspire after the fame his worthy father had acquired in the art of decyphering;—his work having been independent of that of Mr. Prinsep, is a direct recommendation of their labours, as both have obtained almost similar results. I shall shortly mention, what still may be amended in them.

It is then the design of the following work, to rectify and enlarge the decyphering of the alphabet; to define the language of the native words imprinted on the coins; and to illustrate the relics of the written history of the Bactro-Indian kingdoms, according to a paleographic and philological view.

The author being no numismatist, does not conceal to himself, that he cannot depend upon his own judgment in numismatic investigations. However, for this part of the explanation of the Bactrian coins, he was so much prepared by the preceding works, that he was, while at work, but seldom sensible of the insufficiency of his knowledge in this respect. Should he sometimes have ventured to recede from the inferences of the numismatists, they will, he hopes, excuse him for this little deviation from their authority if, on the other hand, he may succeed in completing in some instances their inferences by his investigations; for perhaps few of them will be familiar with those authorities by means of which he proposes attempting to advance the whole subject a step further.

As the Bactrian empire was placed in the centre of communication, crossing from west and east, from north and south, the modes of research for interpretation of its documents and restoration of its history, must unite from various parts, in order to complete the investigation. The Grecian, the old Persian, the old Indian, and the Chinese philologies meeting here, in close contact, must mutually supply their respective deficiencies.

I shall now more distinctly define the subject of my work.

\* *Blätter zur Münzkunde* (leaves on Numismatics) 1836. No. 26.



When we meet upon the coins with legends of a twofold writing, viz., a Grecian and another unknown, we dare positively assert, that the names written on the one side in Grecian characters, must be repeated on the reverse. From this point of view Messrs. Prinsep and Grotefend have also found the alphabet, which I have to rectify only in a few points; for in the main point the decyphering of the alphabet is already completed.

If I may be allowed to state beforehand, in what respect both have been mistaken, it appears to be the following:—Neither of them has succeeded in the choice of words to explain the appellatives in the native language, in consequence of which, both have adopted some spurious letters. Mr. Grotefend had not at his command coins enough to observe this mistake in the application of these words to proper names; besides, the legends have become so indistinct, that without comparing many copies, it is often impossible to find the real shape of some letters, or the proper native orthography. Mr. Grotefend appears in general not to have borne in mind, that the native language might be of such a nature as to require an orthography different from the Grecian, and he therefore adapts also the vowels to the latter, though the native writing has its proper system of denoting vowels, from which it is not allowed to depart.

Mr. Prinsep has arrived at this system; but as he does not apply it with sufficient exactness, he is mistaken in the reading of an important letter, and obstructs his own way to an accurate knowledge of the native language. Though he is quite correct in supposing, that the native orthography must not always copy every Grecian letter, yet, he does not accurately define the nature of those deviations, and is too easily satisfied with a groundless difference in the orthography.

With regard to some letters, the proposed alphabets present also differences in shape too great to allow their adoption, without a more careful examination.

It would be unjust to mention this censure, without adding at the same time, that my alphabet is entirely grounded upon that of my predecessors, and that the merit of the real decyphering is due to them.

## FIRST PART.

## DECYPHERING.

*Fundamentals of Decyphering.*

I first put together a number of letters, about which there cannot be any doubt, and which have been read in the same way by Messrs. Prinsep and Grotefend; to these I shall add some others, concerning which I differ in opinion from one or the other, and I shall state my reasons. In connection with this, I shall make some previous inferences, as well on the character of the alphabet, as of the language.

1. ʔ, A. This is established from the names Apollodotos, Antialkides, Antimachos, Azes, and Amyntas, in which it is the first symbol. Mr. Prinsep observes this letter to be written as only initial.\* This is so far to be limited, that it is only written when the syllable commences with A, just as अ in the Indian alphabets; for in the name Antialkides, we find ʔ in the middle of a word, according to Mr. Prinsep's own latter remark.† Mr. Grotefend, according to the coins, has stated four varieties of the shape, but they are all really the same, and well preserved copies represent only the foregoing character.

After a consonant which has the vowel, A ʔ is never met with, from which we infer, that the sound A is accounted inherent in the consonant, and is not represented by an express symbol. On the other hand, we shall find proper symbols of vowels, whenever a consonant is followed by any other letter than A; it appears here, therefore, the same system of orthography as in the Indian alphabets, and in the arrow-headed writing. For the omission of A, when the syllable has a final consonant, and for which the Indian alphabet has adopted the symbol of pause (*Virāma*), there is not found any symbol in our legends, as it does not occur in the arrow-headed writing.

2. P, O. This symbol occupies always, (with the excep-

\* As. Jour. No. v. p. 722.

† As. Jour. No. iv. p. 329.

tion of a single word, viz. the name in the native legend upon the coin of Agathokles,) the final place of a word; all authentic words do also end in  $\mathfrak{P}$ . Hence, because O is the termination of the nominative singular masculine in the Zend, and because an omicron occupies the final place whenever native words are rendered by Grecian letters, as for instance PAO, KOPANO, Mr. Prinsep infers,\* that  $\mathfrak{P}$  must be the same with O. Mr. Grotefend has arrived at the same result, and has noted eight varieties of the symbol, two of which will prove genuine, (the fourth and fifth), the others, however, are partly mutilations, partly real, but indifferent deviations. In accordance with Mr. Prinsep, I can admit only two varieties.  $\mathfrak{P}$  appears† often with a small cross line below, a peculiarity, which, however, will recur in many other letters. But whether the round above be closed or not, is quite incidental.

To the reasons alleged by Mr. Prinsep, I add also, that the most common dialect of the Prâcrit, instead of the A of the Sanscrit, substitutes likewise ô in the nominative sing. masc. This is indeed the case only with masculine words, ending in A; but they form, as well in Zend, as in Sanscrit and Prâcrit, by far the most numerous class of words. This nominative, therefore, refers also to India, as the native country of the Zend, and decides nothing about the language upon the coins.

Whether  $\mathfrak{P}$  must be read as ô long, or as short o,  $a+u$ , is not easily to be decided. The Sanscrit has but a long ô (compound of a + u). In the Zend, ô is likewise a diphthong, to be considered as the coalescence of a and u, though one of both forms of ô may have been shortened in the pronunciation; for

\* As. Jour. No. iv. p. 329.

† For a long time Mr. James Prinsep, with Mr. Grotefend and the author of this essay, read the character  $\mathfrak{D}$  as a form of the  $\mathfrak{J}$  u or ô, but he latterly rejected this reading, and adopted the Sanscrit genitive as A instead of the Zend one of O. The character was universal as a final of names, and was evidently an inflection. The reasons for his reading  $\mathfrak{P}$  as an S will be found in pages 642 and 643, vol. vii of the Journal, that is, in the Journal for July, 1838.

Mr. Lassen has admitted his preference of the reading of this letter as S, in a letter to Mr. Prinsep we shall presently quote at length.---H. T. P.

it appears in instances where the Sanscrit renders A by the Greek O for instance, Bharait (Bharêt) Zd. Barôit, Gr. *φῆροι*.

The long ô of Sanscrit is generally kept in Prâcrit,\* particularly in the terminations, though the shortening of this vowel must be admitted in some instances. The contiguous languages, (for I scarcely need to say that the language upon the coins must among those three meet with its relation) seem to coincide in proving the P to be ô. That P cannot be an entirely short O is evident from the fact, that the Greek omicron is never rendered by P, as for instance in Apollodotos. But because for the termination P the Grecian paraphrase puts also an O, this intimates, undoubtedly, that the pronunciation of P is at least shortened in the terminations.

For the above reading of the letter P I could not plead its use in the legend upon the Agothokleian coins, for the authenticity of the word is not quite settled. Mr. Prinsep supposes this legend to consist of two words, both ending in P; I rather think it a Greek word, in which P would correspond to ω. The Parthic name *Vonones*† requires ω in the second syllable, according to Grecian orthography; however, the native representation of this name is matter for discussion, which cannot be entered upon at present, I shall therefore be satisfied now to denote P by ô, and with the above mentioned restriction, I think it long P.

3. ∪ M. The fixing of this letter belongs to both my predecessors, and is confirmed by the names Antimachos, Menandros, Hermaios, Diomedes, and Amyntas.

The symbol often has below the small cross line ∷ already alluded to; it may even be connected with the main figure by a perpendicular line ∷

The form ∪ occurs for the syllable ME in Menandros, for MH in Diomedes, for MY in Amyntas.

From the name Menandros, and from the application of this symbol to other consonants, followed by the vowel é, Mr. Prinsep has inferred, that the perpendicular line must be the sign of short è. This opinion is certainly right, and will be

\* My Grammar, p. 150.

† The noting of Vonones has been given up by Mr. Lassen.



fully confirmed. The *i*, following consonants, is always represented by this line, which, in favour of the figure of some consonants, is rendered also obliquely. In similar manner the *e* or *i* in this place is denoted in the old Indian alphabets by a mark above, connected with the consonants. Mr. Grotefend, following the Greek alphabet, has incorrectly adopted  $\psi$  as the representative of the vowel in  $\psi$ ; if this be so, the same sign must represent *y* in Amyntas,  $\hat{e}$  in Diomedes, and *i*, if there is *i* in the Greek, as for instance, with  $\eta$  in Antimachos. It is evident, that it always is the same vowel, which did not sound differently in different words, but is always *i*, and that the native language substituted the same one for those four Greek vowels together; this supposition agrees also much better with the nature of those languages. They all reject the *v*; in consequence, we find  $\psi$  in Amyntas, as it was the sound, most congenial to the ear. When upon the coins Dijamidô is written for *Diomedes*, we ascribe it to the pronunciation of the  $\eta$  as an *i*, which already had stolen in; the vowel, however, in this instance must be long. But because we also do not find the long *A* differing in orthography from the short *A*, the objection taken, that our line is likewise substituted for a long *i*, will be of no consequence.

The position holds good, when the vowel-line may represent  $\epsilon$ . Why was  $\hat{e}$  not written for  $\epsilon$ , seeing that we observed before, that  $\rho$  though really  $\hat{o}$ , is still sometimes put for  $\epsilon$ ? Now just, because the language has an  $\hat{o}$ , I am inclined to infer, that it had also an  $\hat{e}$ .\* He who is acquainted with the analogy of languages used in lands contiguous (to Bactria,) will admit of the inference. In the Sanscrit there is no  $\epsilon$ , but there is an  $\bar{e}$ ; on the other hand, the Zend has even three  $\epsilon$ s ( $\epsilon$ ,  $\epsilon$ ,  $\hat{e}$ ), the first of which is decidedly a short vowel; lastly, there is an  $\bar{e}$  in the Prâcrit,† which is still more frequently shortened than  $\hat{o}$ , but being shortened, alternates with *i*. In the Zend, the manuscripts give also sometimes *i* for  $\epsilon$ ; but otherwise the  $\epsilon$  is not related to *i*. Why then was the sign *e* not written for the Greek  $\epsilon$ , if that sound was to be

\* I have above endeavoured to express the German sound of  $\hat{e}$  by *A* which it resembles: I shall hereafter leave it as it is.

† Vide my Grammar.

met with in that language? That this was not the case, the names Philoxenos and Hermaios will hereafter prove. The native ê must have been considered too grave to be equivalent to the light Greek ε; the written characters at least had not an ě, as evident from its not having been used in the above named instances; consequently there remains scarcely any other course than to write i. For the principle of Historical Comparative Grammar, under which in Zend and Greek, ě would be produced by shortening an original ă, cannot be applied to words, written down\* from merely hearing them pronounced. We might rather here apply the analogy of the Prâcrit, which seeks to substitute an ĩ for the shortened ê, as in shortening the sound ê, produced by the coalition of a and i, the element i prevails.

Were the language upon the coins Zend, we must expect an ě; but if it were the dialect of a country upon the Indian side of the Hindu Koosh, we should not be surprised by falling in with the Indian system of vowels.

On the fact, that upon the coins, i only is always substituted for the four Greek vowels ε, ι, η, υ, or for the sounds a, e, ee, y, I ground the proposition, that the mode of writing Greek names was based upon the system of native sounds, according to which the foreign names were changed. It is included in this proposition, that it will by no means be necessary to refer in every peculiarity (observable in the native character), to Grecian orthography. Should we misapprehend this principle, we should run the risk of thinking we recognized the native characters in incorrect positions.

4. ϣ P. Apollodotos is sufficient to establish this letter. Both my predecessors have already adopted it. In Philoxenos also occurs the initial ϣ, from which it is evident, that, the Greek φ not being in the native language, P was substituted for it; the Zend, and the old Persian have f, the Sanscrit and Prâcrit only ph, or P, with a prolonged aspiration. By the want of f in the language upon the coins, we may observe an affinity to the character of the Indian languages, and a diversity from that of Iran. But because there was no letter corresponding to the Greek φ, it still does not follow, that f did not

\* As they would be in the language under consideration.—TRANS.

exist ; this cannot be clearly ascertained, until after the examination of the un-Grecian names Unadpherres and Kadphises ; for the Greek  $\phi$  will be only the representative of an f in them.

I observe on this occasion, that thrice in the native legends no vowel sign occurs for the o in Apollodotos, but only the consonant with its inherent a. Though it follows from this, that the language of the coins owned not a pure  $\ddot{o}$ , yet we must also bear in mind, that as now in some Indian dialects, so the  $\ddot{a}$ , as pronounced of old, when occurring in middle syllables, approached to the pronunciation of o. Though we otherwise had to expect to find the Greek  $\omega$  rendered by u (oo), we nevertheless observe it once only upon these coins, and even there it is not certain. On the other hand, in the merely Indian alphabet of the coins of Agathocles *omicron* is represented by u (oo).

I maintained, that  $\mathfrak{h}$  was the initial in the name Philoxenos. Where then is the i (ee) ? on the copy R. R. II. No. 5 we distinctly observe the trace of i, as the sign  $\mathfrak{h}$  appears there. It is therefore to be restored as  $\mathfrak{h}$ . The other copies, R. R. II. No. 6 As. Trans. Vol. iv. Pl. XXI. No. 2. have indeed only got  $\mathfrak{h}$ , pa, but the state of the coins proves, that a part of the character may have been effaced. A fourth coin (As. Trans. Vol. iv. Pl. XXI. No. 1) is so much spoiled in its initials, that no use can be made of it.  $\mathfrak{h}$  for pi will afterwards sufficiently be proved.

5.  $\mathfrak{h}$  is for lo in Apollodotos,  $\mathfrak{h}$  for li in Azilises, and for ly in Lysias. It is superfluous to repeat here the discussion on this vowel sign. I likewise adopt the l from my predecessors.

In the name Antialkides, there occurs an  $\mathfrak{h}$ , though in Greek l is without a vowel. From this circumstance, however, we do not consider  $\mathfrak{h}$  as a variety of  $\mathfrak{h}$ , but here evidently is a transformation of the Greek name according to the rules of native sounds. The important consequences on this remark, here only hinted at, will be proved hereafter.

On the character itself, I shall only observe, that the small perpendicular line on the left hand is sometimes turned upwards ; at least, if As. Trans. Vol. iv. Pl. XXI. No. 1. the apparently well preserved word, by which  $\alpha\nu\acute{\iota}\kappa\eta\tau\omicron\varsigma$  is expressed, is faithfully represented by Mr. Prinsep. But the form I have

adopted is most prevalent ; we are not yet sufficiently prepared to enter into full discussion on the  $\text{†}$ , which denotes  $\text{lo}$  in Philoxenos.

6.  $\text{ṛ}$ ,  $\text{t}$  and  $\text{ṛ}$ ,  $\text{d}$ . It is difficult to distinguish these two symbols, and they are so often confounded, that we might take one for the other. We might be even induced to think, that the language of the coins did not distinguish between  $\text{t}$  and  $\text{d}$ , that it perhaps always changed an\* independent  $\text{t}$  into  $\text{d}$ , as the common Prâcrit does, or an independent  $\text{d}$  into  $\text{t}$ , as the Paizâki dialect of the Prâcrit,† assigned (as a spoken tongue) to tracts immediately under the Himalaya, and in the Punjab.‡ But let us cite some facts.

The same symbol for  $\text{t}$  and  $\text{d}$  occurs in R. R. I. No. 7 ; there is at least no essential difference, though the  $\text{i}$  with  $\text{t}$  is of course represented  $\text{ṛ}$ .

As. Trans. Vol. iv. Pl. xxv. No. 9, the  $\text{ti}$  is almost  $\chi$ , while the  $\text{d}$  is nearly an angle ; at the same place, No. 10, the  $\text{t}$  is effaced, and indistinct ; we find again upon No. 11,  $\text{t}$  and  $\text{d}$  quite similar ;  $\text{d}$  has only got the small cross-line we already observed with  $\text{ṛ}$  and which never denotes a difference. In  $\text{t}$  ( $\text{ti}$ ) and  $\text{d}$  in Antialkides, As. Trans. Vol. iv. Pl. xxvi. No. 9, and No. 10,  $\text{t}$  is in both instances more crooked, while  $\text{d}$  appears quite angular ; on No. 11 they are both alike, and the  $\text{i}$  in  $\text{ti}$  is effaced. The  $\text{t}$  in Antimachos is likewise more curved, and serpentine. As. Trans. Vol. iv. Pl. xxi. No. 3 and No. 4. The  $\text{t}$  in Amyntas, As. Trans. Vol. Pl. xlv. No. 1. is quite angular, as  $\text{d}$  in other cases, in Diomedes. As. Trans. Vol. v. Pl. xxxvi. No. 3, the upper part of  $\text{d}$  has quite disappeared. Apollodotos finally puts  $\text{t}$  and  $\text{d}$  close together. As. Trans. Vol. iv. Pl. xxvi. No. 4. gives to  $\text{t}$  almost the angular form of  $\text{d}$ , while  $\text{d}$  is entirely rounded. No. 5 represents the regular  $\text{d}$ , but a much distorted  $\text{t}$  ; in the same manner, No. 7 ; and No. 6 is of no use as authority ; No. 8 gives  $\text{t}$  in the angular form with the small cross—besides, there is above at the left

\* Vide my grammar, p. 442.

† At the same place p. 15.

‡ The reference by Prof. Lassen to his grammar (which I have not) would explain the expression, which I am otherwise unable to gain the force of.—TRANS.



angle a small line, turned upwards; the d is here more open than an obtuse angle of  $100^{\circ}$ . The small line, shooting up to the left, is however met with (R. R. II. No. 14, No. 13) likewise in d, which here completely assumes the form of t, while the t has become more slender, and more like a straight line.

This uncertainty in the character does not only occur upon the older coins which represent a native writing, less carefully executed; for though, according to Mr. Prinsep's remark, it becomes more distinct and exact in process of time, still the same difficulty in distinguishing precisely d and t occurs upon the well preserved coins of Azes. Thus upon the coin, As. Trans. iv. Pl. XXII. No. 10, No. 1, where the t of the word *mahatô* (great) takes in both the angular form of d, once with the cross-line below, the second time with the final stroke above, shooting out ( ʌ ), while there is upon a third coin (No. 2) a t with a final stroke, turned upwards to the left ( ʌ ).

If therefore a distinction between both letters is to be made, we are at a loss what characters belong to either of them. Since we are now only in search of the language, and the writing gives us no explanation itself, I only know one way to come to a conclusion. It is indeed proper to read, with regard to names, according to the Greek, because there is evidently a tendency to distinguish t and d from one another; but this tendency may here be attributed to the influence of the foreign names of kings, and it decides therefore nothing about the original rule of sounds in the language. For this the analogy of what occurs in other organs would be the strongest criterion; if p and b, k and g, be likewise not distinguished, we can maintain this as being both t and d. We therefore shall defer the decision of the question as to whether in the language of our coins, the different grades of consonants were confounded.

Mr. Prinsep has explicitly noticed the uncertainty of the characters; Mr. Grotefend gives evidence of it in his alphabet, and adds to d some entirely deviating forms. In order not to copy in printing all those little varieties, I have always put for t, ʌ, for ti, ʌ, for d, ʌ, and for di, ʌ, when I adopted the one or the other according to Greek, or from internal evidence; but a final decision must by no means be anticipated, as to this point.

Lastly, in discussing this question, the great similarity of t and d with r must be kept in sight, so that it becomes very difficult to distinguish them; however, it would lead to an extreme conclusion to throw these three letters in the same mould.

8.  $\text{ɿ}$  n. For this Mr. Prinsep adopts  $\epsilon$ ; so does Mr. Grotefend, who adds besides five other entirely different characters, as representing n; but they have been produced from mistakes in reading, as will be proved hereafter;  $\epsilon$  occurs indeed in the syllable na of the name Menandros upon many coins; As. Trans. Vol. iv. Pl. xxxvi. No. 1 has  $\epsilon$ ; on the other hand, No. 2. a. b. has my character. No. 3. likewise has it, only a little distorted; also As. Trans. Vol. v. Pl. xlvi. No. 5 and No. 8. particularly the latter, where the curvature is more prominent than in my character, and a point is superadded ( $\text{ɿ}^{\cdot}$ ) At the same place, No. 6 has indeed the character as exhibited by Messrs. Prinsep and Grotefend. At R. R. I. No. 12, the form is quite indistinct, also No. 8. No. 9; at No. 10, the drawer seems to have been incorrect. The copy, according to Tod,\* is of much less use. In Philoxenos, As. Trans. iv. Pl. xxi. No. 1, my symbol occurs; No. 2 has got the other R. R. II, No. 6 some mixture of both.

The cross-line below, being proved to be an unmeaning ornament, we have in fact but to choose between  $\text{ɿ}$  and  $\epsilon$ ; and these appear to me varieties only of the same character, according as the middle part of the letter was bent in another way. But since the figure  $\epsilon$  occurs also in instances, where it cannot be n, I preferred the figure  $\text{ɿ}$  for the type.

It might be supposed that, because n appears so often, the distinction was to be easily effected, and the foregoing discussion therefore might be quite superseded. For we have also to expect n in Antialkides, in Antimachos, and in Amyntas. But on looking for n in the corresponding places, we find nothing at all, and it must be directly evident to the unprejudiced inquirer, that *here* the letter n was not expressed, viz. not before t, at least not by a symbol, placed in the line. As to the supposition, however, that the point ( $\text{ɿ}^{\cdot}$ ) near  $\text{ɿ}$ , often

recurring in the name of Menandros, might denote the nasal sound, in like manner as in the Indian orthography a point, viz. the Anusvâra, represents a nasal sound (सं Sanscrit संतः, santah), there are two objections; first, the point is met with in situations, where a nasal sound can by no means be expected, as for instance directly with the following letter in Menandros, where it is placed on the left ङ (As. Trans. Vol. v. Pl. XLVI. No. 8) and secondly, after ॡ (at the same place) where it could only denote an â.

The name Menandros never exhibits the second n, and for dr there is but one symbol. Mr. Grotefend seems to be of opinion, that the last half was omitted, and Menan only extant, but the termination ô is always found, and the name is complete according to the native orthography. There must have been therefore, besides the omission of n before d, which is established beyond doubt by the analogous omission before t, a further alteration of the name. This may suffice for preparatory observation.

9. For X in Antimachos the figure 5 occurs (R.R. II. No. 4. and As. Trans. Vol. iv. Pl. XXI. No. 3): at the same place upon No. 4, the character being a little obliterated, is like a 7. I shall write kh; the fixing of this letter is due to both my predecessors.

10. ॡ is accounted by Mr. Prinsep as a variety of l, though he likewise was about to explain it by h.\* He can adduce authority for l, only in the native word for *king*, which he proposes to read *malakáo*, without giving an explanation, as to how this Semitic word may have crept into this place. The proposition to read this word as *maharaó*, he afterwards disapproves of. Mr. Grotefend, however, reads it thus, and he is certainly right with reference to h. But in order not to be hasty in deciding a point so important (for by reading h we render the language decidedly Indian, and exclude the Zend) let us look for a name, in which h occurs. Hermaios is most proper for this end, because the h is initial; we only have to premise, that it must also exhibit the symbol of i, i being

\* As. T. iv. 331.

substituted for  $\epsilon$ . Now the name (R. R. I No. 13) distinctly commences with  $\chi$ ; likewise (As. Trans. Vol. iv. Pl. xxiv. No. 3) at the same place No. 1 has i quite distinctly, with the reservation, that the lower curve of the h is lost, and if the coin be not put in proper position, the last letter appears too erect, while the real position of h would appear to incline to a slope. Upon No. 2 the h is effaced, upon No. 4 distorted, and the i has disappeared. The coin (As. Trans. Vol. v. Pl. xxxv. No. 11) is distinct, but h here also is in a more erect position than it occurs in usually.

The  $\gamma$  often recurs in the title of king, and the beautiful Azes coins define the character, while the native word for *great* will sufficiently confirm us in reading it h;  $\chi$  as hi is equally evident.

11. The symbol, subsequent to hi, and placed before m upon the above named coins of Hermaios, is more or less similar to a t; but since it must be an r, the great similarity of both, before already alluded to, is evinced by it. Both my predecessors also acknowledge the r in the figure  $\gamma$ ; Mr. Grotefend only adds from the name Eukratides, as it appears, a figure ( $\gamma$ ) not appertaining to r. Mr. Prinsep gives another, which he has adopted from the Hermaios coins, before mentioned; a more accurate examination, and the comparison of the different copies, however, proves it to be but a form of r on a more extended scale. I have adopted the more angular form from the Azes coins, and also kept the sketchy approach to the cross-line below, viz.  $\gamma$ , to distinguish it from d.

12. I can now take another more decisive step. The word for βασιλεύς so often met with, which Mr. Prinsep read *malakáo*, and Mr. Grotefend *maharaó*, undoubtedly consists in accordance with so many copies, of the following letters,  $\mathfrak{m}\mathfrak{a}\mathfrak{h}\mathfrak{a}\mathfrak{r}\mathfrak{a}\mathfrak{o}$ . We are already acquainted with *maharaó*. The character  $\mathfrak{a}$  which often has two oblique lines, as upon the Menandros coins, (As. Trans. v. Pl. xlv. No. 6. No. 8.), but which in others, is defective in the lower cross-line, is read â by both my predecessors. Neither of them seem to have been aware, that if â be taken in this case as written after r, it also must occur wherever a long â follows a consonant; so that if the first half of the title be *maha*, the  $\mathfrak{a}$



must be also placed after *h*, as the word is *mahâ*; the Semitic word *malakaô* is indeed a very doubtful interpretation, while, as the second letter is an *h*, not an *l*, and the third not a *k*, every shadow of identity with it disappears.

If then  $\Psi$  is not *â*, it must be a consonant, and this cannot be but *g*, (dj. ज) The word therefore is *mahara-g'ô*, viz. *Great king*. Against Mr. Prinsep's\* first opinion, that  $\Psi$  did never occur as an initial, it has been proved by a later discovery†, that the native translation of the word *νικάτωρ* commences with a  $\Psi$ , the two first symbols are  $\wedge\Psi$ , and because  $\wedge$  is *j*, we must read *g'aja*, viz. victory, Sanscrit जय, and if there should remain any doubt, I beg to add, that *νικηφόρος* is also translated by the same native word, as upon the Archelaos coins (As. Jour. v. pl. xxxv. No. 1.)

Let us here only take up the new word, *Maharag'ô*. *Ra* as well as *ha* have in the Indian language a long vowel; but to denote this there is no symbol extant in the legend on the coins. Upon some copies, as above mentioned, we meet with a point below the *h*, as upon the Menandros coins (As. Jour. v. pl. XLVI. No. 6. and No. 8;) but *m* has there also such a point, and even the name Menandros at the last letter before *o*. In no case can it be taken for *a*. The point must have another meaning.

Hence it follows, that the inscription on the coins, does not distinguish between a long and short *a*, as I have already noticed, when observing on the letter *i*. This proposition is of highest consequence for the reading of indigenous appellatives.

I therefore read *mahârâg'ô*. If it be even granted, that this royal title might be introduced from contiguous India, and in consequence of this not sufficient to decide of itself the relationship of the language upon the coins, yet, it serves as an indication of the mode we are to follow in interpreting the other titles.

13. The last syllable in Hermaios is  $\Psi\wedge$  (As. Trans. Vol. iv. Pl. xxiv. No. 1;) upon No. 3, and No. 4, the *ô* occurs in an un-

\* As. Trans. iv. 332.

† As. Trans. v. pl. XLVI. No. 1.

common form, which is perhaps only produced by the sharp accentuation. Thus ends likewise the name of Lysias; at the same place (As. Trans. Vol. iv. Pl. xxvi. No. 12. R. R. II. No. 8.) Mr. Prinsep inferred, that  $\wedge$  was a j; Mr. Grotefend expresses it by i. But if we restore, according to Mr. Prinsep's striking remark, the upper line of the penultimate in the name of Diomedes, (As. Trans. Pl. xxxv. No. 3.) we shall have  $\text{P}\text{r}\text{w}\text{w}\text{r}$ , in consequence *dajamidó*, for no body would be inclined to read *daimidó*; and on the other hand, *daimidó* must be written  $\text{P}\text{r}\text{w}\text{r}\text{r}$ ,  $\wedge$  therefore is a consonant, and  $\text{P}\text{r}\text{u}\text{r}\text{r}$  is to be read *hirmajó*. In the same manner  $\text{P}\text{r}\text{v}\text{r}\text{r}$  must be accepted as *lisajó*.

Here I must however, remark, that we do not yet know whether  $\text{r}$  be not rather written as the initial in Diomedes. Mr. Masson read  $\text{P}\text{r}\text{r}$  at the end upon the coin of Archelaos, (As. Trans. Vol. iv. Pl. xxxv. No. 1.) but the name upon the coin has become illegible. According to the same analogy we must rather expect *Lisijó*,  $\text{P}\text{r}\text{r}\text{r}$ ; and here also we cannot come to conclusion, but by recommencing the investigation of the same coins, or by discovery of a new one.

From these corrected readings some peculiarities of the language become evident.

From *Hirmajó*, being substituted for Hermaios, it follows, that the language did not favour an open diphthong, as *ai*, and therefore changed the i into the affinative semi-vowel j. It probably did likewise reject *au*, and it would have been rendered in *av*, if a vowel followed this diphthong.

From *Lisajó* and *Dajamidó* or *Lisijó* and *Dijamidó*, it follows, that this language was averse to admit the use of i, followed by a vowel, even if a consonant preceded the i; I use the expression "is averse to" this admission; for if the three first syllables in Antialkides are expressed by *atia*, this is probably done only in obedience to the order of a foreign king. So much at least is evident, that the language rejected the hiatus in *Lysias* and *Diomedes*; in what manner it was supplied, must be left at present undecided. However, the most obvious conjecture is, that a j was evolved from i. Thus the Sanscrit in *bhîê* resolves the long  $\hat{i}$  into  $\ddot{u}$  whence *bhijé*; in *ijarti*, ij is derived from a

short *i* (*i-arti*); likewise, *rijati* from *ri-ati*. The Prâcrit would admit the hiatus in *Lysias*, and *Diomedes*.

I shall yet add on the orthography of *hirmajô* the following remarks. We can find no affix to the *r* showing it to be *r* by itself, and not *ra*. There is indeed no sign of pause, no *virâma*, any more than is met with in the arrow-headed writing. We must then also here decide on purely philological grounds, whether a consonant, having no other vowel sign, is to be read with a or without it. The one peculiarity explains the other.\*

Messrs. Prinsep and Grotefend read, according to the Greek, the symbol ᳵ in Azes as *z*, and the symbol ᳶ in Azilises as *zi*. Mr. Prinsep is inclined to admit also its denoting *g'* (𑀧);† but as we have found ᳵ as expressive of this letter, we cannot agree in this supposition. On the other hand, it is more difficult to decide, whether ᳶ be the representative of *z* (soft *s*).‡ I observe, however, that Azes and Azilises are not originally Greek names. The Greek orthography may therefore exhibit itself as expressive of permutative pronunciation, and the principal question would be, what sound both kings gave those names in their own tongue? Though this be here mere matter of conjecture, yet, I think, I could maintain this one point, viz. that the language, as related to the Sanscrit and Prâcrit, had not the sibilant sound *z* of the Zend and old Persian languages, nor the French and Portuguese *j*, nor the Persian ج; it must therefore denote such a sound by another letter. A French *j*, very softly pronounced, may indeed sound to the ear as a *y*, on the other hand, *z* as well as the French *j*, proceed from *y*. If then those Indo-Scythian names sounded as Azes and Azilises, the Greek representation of them would be, on the one hand, a most proper one, and on the other, that upon the coins, would serve as helping to give a proximate idea (of the sounds.)

That ᳶ denotes *j*, is too much confirmed by the above mentioned Greek names, to be given up; and to adopt two different

\* In this somewhat obscure passage I understand Prof. Lassen to mean, that the absence of the *virâma* in the arrow-headed characters explains the similar peculiarity observable here.—Trans.

† As. T. IV. 330.

‡ Diez Romanische Grammatik 1. 220.

sounds for the same symbol, is foreign to the character of those languages, which write in accordance with pronunciation, and which are hardly acquainted with *historical orthography*, as the French and English have now got it, (or the mode of writing words arbitrarily, and as not pronounced.)

14. I will now observe succinctly on the s in the name of Lysjias. In As. Trans. Vol. iv. Pl. xxvi. No. 12, we find  $\chi$  for s; the y which follows it, which Mr. Prinsep believed to be a t, is indistinct; so also upon the copy, R. R. II. 8: both representations by Mr. Masson (As. Tran. Vol. III. Pl. ix. No. 15 No. 6) furnish only a serawl, at which however, nobody will much hesitate; with R. R. I. is distinctly the character  $\nabla$ , there is here indeed no trace of an i, and we had to read *Lisajó*. Mr. Grotcfend renders the y, by reading Lisiô, i. But I have already previously stated, that we must here expect an i, and we may indeed take the character in the As. Trans. so, as still to preserve the trace of that letter. For by comparing si in the name of Philoxenos, it appears, that in  $\nabla$  the i crosses the triangle; upon the coins, (As. Trans. Vol. iv. Pl. xxi. No. 1 and 2, a  $\chi$  viz. si) twice before nô, the difference being, that in course of time the triangular character has taken an open form. R. R. II. No. 5, is well preserved, and has  $\nabla$ . I therefore adopt also  $\nabla$  as the perfect character upon the coin of Lysias.

I must prove hereafter, that  $\nabla$  is probably a sh (sch. ष.)

(To be continued.)

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*Official correspondence on the attaching of Lightning Conductors to Powder Magazines. Communicated by permission of Government, by W. B. O'SHAUGHNESSY, Assistant Surgeon, Bengal Medical Service.*

#### INTRODUCTORY NOTE.

The great importance and difficulty of the question now under discussion, here and in Europe, regarding the attaching of Lightning Rods to Powder Magazines, led me to solicit the permission of Government for the publication of the following documents.

Opportunities are so abundant in India for the investigation of such facts as may elucidate the difficulties still besetting this subject, that I should be deficient in all public feeling, did I hesitate in publishing this correspondence, although the high name of Mr. Daniell is arrayed on the opposite side to that which I have taken.

Mr. Daniell conceives conductors to be at all times infallible in the protection they afford, and he would attach them *closely* to the Magazine. I adduce facts on the other hand to shew, 1<sup>o</sup> that to derive perfect safety from this apparatus, we must use many more conductors than are generally directed; 2<sup>o</sup> that an inadequate number only increases the risk of a *direct* stroke of lightning; 3<sup>o</sup> that with any number, if placed *close* to the Magazine, although they carry off ALL the lightning to the ground, the Magazine may still be blown up, *by minute sparks* occurring among the powder barrels, by the disturbance of *their own electricity*, while the lightning is passing *outside* the building.

Mr. Faraday's opinion in all the essential points at issue, coincides with mine; and my lamented friend, James Prinsep, entertained exactly similar ideas to those advanced in my first report to the Military Board; in England, Mr. Sturgeon and Mr. Roberts take the same side in the discussion. Our chief opponents are Messrs. Daniell and Harris, and both these gentlemen, I know not why, have lost temper in the controversy. This indiscretion I strive to avoid, through respect for my distinguished antagonists and for myself. The question is one simply of facts, and the inferences seem sufficiently obvious; our sole object is to arrive at the truth, and this can only be reached by the temperate and patient investigation of all the circumstances before us.

W. B. O'S.

3rd August, 1840.

(No. 1.)

TO DR. O'SHAUGHNESSY,

*Medical College.*

*Ordnance Department.*

SIR,

The Military Board having been called upon by Government to report upon the expediency or otherwise of attaching lightning conductors to powder magazines, I have been instructed to address you on the subject, in the hope that your scientific knowledge may assist the Board in forming a correct opinion on that point.

2. Should the use of lightning conductors be considered by you desirable, the Board would feel obliged by any suggestions that you may be able to offer as to their height, position, size, and number for any given extent of horizontal or vertical surface.

3. The accompanying memorandum was received from the Court of Directors, and you are requested to return it with your reply.

*Fort William,  
Military Board Office,  
22nd December, 1838.*

I am Sir,

Your obedient servant,

W. DEBUDE,

*Officiating Secretary Military Board.*

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*(Memorandum.)*

The higher a conductor is elevated, the more its efficacy will be increased.

Therefore for a powder magazine the conducting rod should be elevated seven feet at the least above the highest point of the building; should be placed standing out one foot from the building, and be made as continuous and direct as possible, branching out at the level of the ground, and carried under ground in a dry brick drain six inches diameter, ten feet long, from thence carried down a hole filled with burnt chareoal, or ashes from the baker's oven.

Copper rods pointed at top with platina are recommended.

As the electric matter from violent storms causes intense heat, it is recommended to have the conducting rods one inch in diameter, which is a quarter of an inch more than they are usually made in England.

Strong wood brackets made of teak, or any other hard wood, to keep the conductors firm in their places.

There should be a conducting rod upon the principle here delineated at each end of the building.

And as the direction of lightning is often determined by that of the rain, the surface on the side of the building might attract it, it would be prudent therefore to have a conducting rod on each side of the building as well as at the ends.

The rods should be united with the best screwed joints, with a top screw of the same metal as the conductor.

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(No. 2.)

FROM ASSISTANT SURGEON W. B. O'SHAUGHNESSY, M.D.

TO CAPT. DEBUDE,

*Officiating Secretary Military Board.*

*Fort William, December 27th, 1838.*

SIR,—I have the honor to acknowledge the receipt on the 24th instant of your letter of the 22d, on the subject of the attachment of lightning conductors to powder magazines.

2. The question you propose is one of much difficulty. I doubt indeed, whether the existing state of knowledge regarding the reciprocal action of atmospherical and terrestrial electricity, especially during the paroxysms of tropical storms, is as yet sufficiently advanced to warrant the expression of more than a very diffident opinion on its several points.

3. I shall take the liberty of premising some general remarks on lightning conductors, before I take up the special subject of your letter.

4. I am in possession of several facts hitherto unrecorded, which seem to me clearly to show that in ordinary edifices the attachment of lightning conductors, even when properly

constructed, is by no means the infallible protection so generally imagined.

5. It is often no doubt easy to explain the occurrence of disasters by lightning to buildings thus apparently protected, on the ground of defective construction of the conductors, or of disproportion between the number of conductors and the extent of area to be guarded. By such considerations we may explain the accident to Government house on the night of the 30th of March 1838, and bearing these in mind, measures may be adopted which in all probability will preserve such edifices from similar visitations.

6. But it is a matter of greater difficulty to explain such circumstances I am now about to adduce, in illustration of the opinion expressed in paragraph 4.

7. On an evening in May 1837, the house No. 2 in Chowringhee, then occupied by Dr. Goodeve, and next door to the house tenanted by Mr. Trower, was struck by lightning and much damaged.

Dr. Goodeve's house had no conductor, Mr. Trower's had one at the face adjoining Dr. Goodeve's, and only distant therefrom twenty feet. The conductor is well constructed.

8. On the evening in question, during a violent storm from the North-west, Dr. Goodeve was walking in the verandah (*c*) when Mr. Trower's conductor and the corresponding angle of Dr. Goodeve's house were struck by the *same discharge*, and the lightning in Dr. Goodeve's house followed the course of the vertical window bolts represented by the dotted lines in the plan.

9. This case seems to me completely to falsify Biot's opinion, that within sixty feet interval between conductors no accident can occur—and to shew that occasionally in tropical climates there is such vast disproportion between the quantity or intensity of the atmospheric electricity and the conducting capacity of protectors, that the excess of the discharge must pass to adjacent bodies.

10. In Chowringhee alone, in an area of one square mile, there are over 300 lightning conductors of proper construction,



yet scarcely a season passes but we hear of accidents within that area, and not unfrequently too in houses actually provided with conductors

11. I attribute these accidents chiefly to the vertical window rods which constitute all over Calcutta, as in Indian houses generally, a multitude of interrupted conductors, the inducing influence of which is sufficient to counteract much of the benefit of the well constructed rods. These vertical window rods are on a large scale, precisely identical with the models contrived by instrument makers to shew at the lecture table the dangers of ill-contrived and ill-applied conductors.

12. Were I called on to protect an isolated house of two stories, with angular edges and roof, containing articles of metallic furniture and other good conductors of electricity—under such circumstances I would attach at one angle a common conductor several feet higher than the house, in order to divert the lightning the house and its contents could scarcely fail, under many circumstances of exposure, to attract, and at each cardinal point I would place a rod about ten feet high, connected horizontally by thick rods and rivets with the main conductor.

A building so protected I would consider to be as safe as it is practicable to render it, according to the present state of our knowledge.

13. But in the case of a powder magazine of the ordinary construction, rounded in outline, of trifling elevation, containing no metallic furniture,\* removed from other buildings, and not necessarily in the contiguity of conducting objects, I think its chances of being struck by lightning are very little more than those of an equal area of soil or terrace.

14. We must remember that electric explosions are not chance occurrences,—that they are governed and guided by the influence of “induction,” the effects of which are now

\* “Fittings” should have been the expression, but the word must now stand unaltered.—W. B. O’S.

comparatively well understood ; that it is only between objects susceptible of rapid changes in their electric relations that the explosion passes, but that the explosion may exceed in quantity and in intensity the capabilities of the dischargers we usually adopt.

15. Another reason for objecting to the employment of conductors in the immediate contiguity of powder magazines is, the danger of their inducing what is called the “lateral discharge,” of the nature of which I will venture to offer a few explanatory remarks.

16. Suppose a violent discharge to take place along the conductor *a* to the ground ; during the passage of the electricity an opposite electric state is induced in contiguous objects, and a spark may pass in the interval between *a* and *b*, and all the articles contained within having their electric state transitorily disturbed, *will give sparks at the same moment* ;—if animate, will experience shocks or other effects in proportion to the violence of the primary discharge. Thus the inmates of Dr. Goodeve’s house suffered a shock like the discharge of the Leyden bottle, at the instant the accident took place, described at paragraph 8.

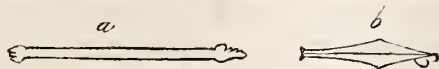
17. Were any peculiarly inflammable matter existing in the interval *a*, *b*, or in the interstices *c*, *d*, the passage of a spark would cause its inflammation, especially if rain were falling at the same time. The explosion of gunpowder by small electric sparks is indeed never certain, but when water or moist substances forms part of the electric circuit.



18. I will not enter on any detailed consideration of the dangers connected with what is called the “return discharge,” in which the electricity is believed to emanate from terrestrial objects, and proceed to the atmosphere. Precise facts are wanting to enable us to form exact opinions on this subject.

19. With respect to the materials and dimensions of conducting bars, I think it is altogether unnecessary either to construct them of copper, or to make them one inch in diameter.\* Iron can be preserved bright for an indefinite period by attaching to it small pieces of zinc, on the principle of the galvanic preservation of copper. If its point be gilt or platinized, the rod will on the contrary corrode much more rapidly than if entirely unprotected. As to size, I have known very many instances of violent discharges of lightning through window rods, through ill-constructed conductors, over picture frames, railings, through the metallic head of a spear with a wooden shaft, &c. &c. and in no case was complete fusion, or an approach to it, effected, except at the ends where the discharge entered, and from whence it proceeded. The drawing *a* shews the extremities of one of the window rods from Dr. Goodeve's house, and *b* of the spear of the Britannia from Government House, Calcutta.

20. As for the silent passage of atmospheric electricity causing the heating of conductors, I scarcely think it possible—certainly no instance of it has been recorded, and even were it to occur, it could not occasion any mischief.



21. To apply the preceding facts to the question before me, I think it inexpedient to attach ordinary conductors, or such as those described in your letter, to powder magazines.

i. Because, being of slight elevation, of rounded surface, and of non-conducting materials, these buildings are scarcely more exposed to lightning than an equal area of ordinary ground.

ii. Because a discharge may occur *too great for the capacity of a single conductor*, in which case the electricity will divide itself to all adjacent objects.

iii. Because though the discharge may pass to the ground, the lateral electric disturbance may occasion an explosion within the magazine.

\* That is where several conductors are employed as subsequently proposed,---W. B. O'S.

22. But as it may be deemed inexpedient to commit a magazine even to the chances of an equal area of land surface, I think a system of conductors on the following plan would prevent all danger of explosion by direct, or lateral, or even return discharge.

I would erect an iron rod, half an inch in diameter, protected by zinc, at every twenty paces, in a circle drawn round the building, and at least twenty feet\* distant from it. These rods should be twenty feet higher than the building, be supported by frames of wood or by pillars inserted at their bases, as deep as the water level (so easily found in Bengal), and at the surface of the ground they should be connected by horizontal rods secured by riveting. During storms the sentinels on duty should withdraw beyond this line, sheath their bayonets, and pile their arms.

I cannot conceive the possibility of an explosion caused by direct, lateral, or return discharge, taking place within this metallic circle. By such arrangements it is that the electrician discharges through a wire bird cage, without injury to its tenant, batteries sufficiently powerful to destroy a horse, and that he grasps the discharging rod in his naked hand while it is part of a circuit sufficient to cause his instantaneous death.

I have the honor to be, Sir,

Your obedient servant,

*Medical College, Calcutta,  
27th Dec. 1838.*

W. B. O'SHAUGHNESSY,  
*Assistant Surgeon.*

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(No. 3.)

TO W. B. O'SHAUGHNESSY, ESQ. M. D.

*Medical College.*

*Ordnance Department.*

SIR,—I am directed by the Military Board to acknowledge the receipt of your letter of the 31st ultimo, on the subject of Lightning Conductors to Powder Magazines; and to express the sense which the Board entertains of the care and attention with which the subject has been discussed.

\* This by an error of the copyist was made *paces* in the MS. report.—  
W. B. O'S.



2. As in many instances it would, from the proximity of other buildings, be impracticable to establish a chain of conductors at a distance of twenty paces from a magazine, the Board would be glad to learn whether, in your opinion, a series of conductors at twenty paces distant from each other, but as near the building as ordinary conductors are commonly placed, and secured by wooden brackets, as shewn on the sketch forwarded by the Court of Directors, would add materially to the security of a magazine.

Fort William,  
Military Board Office,  
16th January, 1839.

I am, Sir,

Your obedient servant,

W. DEBUDE,  
*Officiating Secretary Military Board.*

(No. 4.)

TO CAPTAIN DEBUDE,

*Officiating Secretary Military Board.*

SIR,—In reply to your letter of the 16th instant I have the honor to state, that under such circumstances as you describe, I would not recommend lightning conductors to be attached to the buildings adjacent to magazines even in the numbers before mentioned, as I feel convinced that placing one or more conductors in the immediate contiguity of the building increases all the dangers attendant on the *lateral* discharge. Indeed I would consider a magazine safer if unprovided with conductors altogether, than with any number placed as you allude to.

I believe we may certainly obviate all danger from *direct* discharge by a multiplicity of connected conductors. I admit too that the *lateral* discharge is not likely to occasion more than a minute spark, such as would not harm a living animal, or injure an edifice, but this spark, however insignificant, can ignite gunpowder, and thus lead to as serious mischief as the direct flash itself.

I have the honor to be, Sir,

Your most obedient servant,

W. B. O'SHAUGHNESSY.

January 20th, 1839.

(No. 5.)

MR. FARADAY'S LETTER TO MR. SECRETARY MELVILL ON  
THE PRECEDING PAPERS.*Royal Institution, 5th September, 1839.*

SIR,—I have the honor to acknowledge your letter and the papers, and having read the latter, beg leave to state that my opinion is in favor of lightning conductors. It is no doubt true that low rounded buildings, such as I understand the powder magazines in the East Indies to be, are but very little liable to be struck by lightning, but then if they are struck, the destruction and injury may be very great. It is also, I think, very probable that a lightning conductor may, under *certain circumstances*, cause an electric discharge to take place where none would have occurred no conductor being present, though, on the other hand, there is some evidence to show that conductors cause a diminution in the number of electric discharges to the earth at a given place. It is also very certain that a badly erected conductor is worse than none, and may cause great injury. But notwithstanding these considerations, I have the strongest conviction in my mind that conductors *well applied* are perfect defenders of buildings from harm by lightning. Dr. O'Shaughnessy's papers are very valuable, and serve to confirm my previous impressions; but it would be impossible for me to go over the whole of the opinions and evidence sent me, without at the same time going into a far greater mass dispersed here and there. I would rather refer you at once to M. Arago's popular view of the subject in the *Annuaire* for 1838, pp. 221, 549, &c. with which I, in almost every point, agree.

I would certainly recommend copper conductors instead of iron, for the former metal conducts electricity almost seven times better than the latter. When struck, it not only conducts the shock much better, but in the pre-determination of the stroke it determines more of the electricity to itself than otherwise would fall upon it, and therefore tends in any case of a divided shock to leave less to fall elsewhere in its neighbourhood.

I should prefer them pointed. I should not put them far from the building at their upper extremity, or in their course down-

wards, but the part that is under ground I should turn from the building in its course through the earth, and take especial care, by plates of copper, to make its contact with the moist earth extensive and good.

Conductors should be of a certain height in relation to the roof or summit of the building to be defended; a lightning rod rising ten feet above any part of the roof or chimneys of a house, might defend that house perfectly if close to it, but not if ten feet from it; a rod rising fifteen feet above the highest parts of the roof would be more sure than one of ten feet.

A rod projecting ten feet which would protect a building of a certain horizontal extent might protect a building ten feet wide, &c. A lightning rod has been considered as able to protect objects perfectly when they are not more than twice the distance *from it of its height above them*: but for this to hold true, these objects should not be themselves parts of large masses of metal, approaching by their position or connexion to the character of bad lightning conductors.

I have no fear of lateral discharge from a *well arranged* conductor. As far as I understand lateral discharge, it is always a discharge from the conductor itself; it might be very serious from a badly arranged conductor (and in fact makes them worse than nothing) but with a good lightning rod it can be but small, and then not to badly conducting matter, as wood or stone, but only to neighbouring masses of good conducting matter, as the metals, which either ought not to be there, or if they are necessarily present, ought to be in metallic communication with the lightning conductor itself. I am not aware that lateral discharge can take place *within* a building when a lightning conductor outside is struck, except there be portions of metal, as bell wires, or bolts, &c. which may form an interrupted conducting train from the conductor to the interior.\* It is true that cases which come under the denomination of returning stroke, might perhaps produce a spark in the interior of a building, but the phenomena of a returning stroke cannot occur at the place where the lightning strikes a conductor.

\* Such as the copper linings of powder barrels in a magazine---W. B. O'S.

In my opinion, a good conductor well connected with the earth cannot do harm to a building under its protection, i. e. *though it may induce a discharge on the building*; and the discharge in itself cannot give rise to any secondary effects which are likely to place the building in more danger than it would have been subject to, had the conductor not been there.

I am, Sir,

Your obedient humble servant,

TO JAMES C. MELVILL, ESQ. (Sigd.) WM. FARADAY.  
&c. &c. &c.

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(No. 6.)

LETTER FROM PROFESSOR DANIELL TO MR. MELVILL.

*King's College, London, August 24, 1839.*

MY DEAR SIR,—I have carefully perused and considered the papers which you have done me the honor to transmit to me, relating to the subject of lightning conductors in the East Indies, and now beg to submit for the consideration of the Chairman of the Court of Directors, according to your request, the following remarks upon them.

2. It is with the greatest surprise, I have learnt that the question of the efficacy of lightning conductors, which has been considered by all the leading philosophers in Europe and America as settled by the uniform experience of nearly one hundred years, is still thought to be undetermined by some of the scientific men in the Honorable Company's Service; and that the Governor General and Council, under the influence of their opinion, have come to the conclusion, that in "attempting to protect Powder Magazines by their means more danger than advantage is likely to result from the measure." Should this conclusion be unfounded, as I believe all experience will prove it to be, it must be of the utmost consequence, that it should be corrected, especially in a country peculiarly liable to the paroxysms of tropical storms. That Powder Magazines unprovided with conductors are liable to be fired by lightning, is proved by the blowing up of the Magazine



at Dum-Dum,\* which gave rise to the correspondence, whereas there is no instance upon record of a magazine properly provided with them, suffering injury from the same cause.

3. In the year 1823 instructions for the erection of lightning conductors were drawn up, at the instance of the Minister of the Interior of France, by a commission of the *Académie Royale des Sciences*, composed of MM. Poisson, Lefevre, Ginian, Gerard, Dulong, Furet, and Gay Lussac, and adopted by the *Académie*. The Report is published in the 26th vol. of the *Annales de Chimie et de Physique*.

4. So lately as the year 1837, the facts relating to thunder and lightning again underwent investigation by M. Arago, who has published in the *Annuaire par le Bureau des Longitudes* for 1838 a very detailed scientific notice "*Sur le Tonnerre*."†

5. These two reports have really exhausted the subject, and ought to be sufficient, in my opinion, to convince the most prejudiced; first, of the impossibility of any extra danger arising from lightning conductors of proper construction; and, secondly, of the protection which they are competent to afford.

6. I have lately had the honor of being appointed by the Government upon a Committee to inquire into the efficacy, and best form of lightning conductors for Her Majesty's Navy, and we have just handed in our report to the Admiralty, in which having collected a great body of evidence upon the subject, and having availed ourselves of the opinions of Doctor Faraday and Professor Wheatstone, we have unanimously recommended the general adoption of Harris's conductors on board Her Majesty's ships. The report has been ordered to be printed for the use of Parliament, and I will take the liberty of transmitting you a copy as soon as it is complete. In the mean time, I will endeavour to reply to some of the observations which Professor O'Shaughnessy has made in his report, which is included in the papers referred to me, and upon which, in conjunction with some pri-

\* The building destroyed at Dum-Dum was not a magazine, see the final report, No. 7.---W. B. O'S.

† Arago's admirable paper had not reached India when I was referred to on this subject.---W. B. O'S.

vate observations of Mr. (James) Prinsep, which do not appear, the Governor General's opinion seems to have been formed.

7. First, I infer from the general tendency of the observations of these gentlemen, that they entertain the notion that lightning conductors have the power of *attracting* a discharge of lightning to places where without them it would not occur.

8. Nothing can be more unfounded than this supposition. The intense action which takes place between an electric cloud, of the extent perhaps of many thousands of acres, and an equal area of the earth's surface, is much too extensive to be materially diverted by the mere point which can be directed upon the latter; and which, as compared with the extent and distance of the charged clouds, must be quite inconsiderable. The path of the discharge which takes place, in the form of lightning is determined by what may be the line of least resistance in the whole distance between the two great electrical surfaces, of which the conductor can form but a minute, fractional part.

9. Over this fractional part, however, we may have control sufficient for the protection required. It has been well and accurately observed, "that lightning conductors can no more be said to *attract* the matter of lightning, than a water course can be said to attract the water which necessarily flows through it at the time of heavy rain." It would be absurd to say that a hollow water-pipe open at its upper end, and placed perpendicularly, attracts or invites rain from the clouds, or that in providing our houses with such pipes, we incur a greater risk of being inundated, because they are calculated to discharge freely all the rain which passes into them. No less absurd is it to say that a metallic rod invites lightning, and may be productive of damage, because it is calculated to transmit the electricity which falls on its point.\*

10. Secondly, Dr. O'Shaughnessy refers to danger which is likely to occur from the erection of conductors in the contiguity of powder magazines from what is called "*lateral discharge.*"

\* A pointed conductor will indeed draw off silently and safely a considerable portion of electricity from a charged cloud, but it can possess no power of determining a disruptive and destructive discharge at a point where it would not otherwise occur.---*Mr. Daniell's note.*

11. There can be no doubt, that a conductor in the moment of a discharge of electricity passing through it, influences in a degree, all good conducting substances in its immediate vicinity by induction; but no discharge will take place from it to any neighbouring body, unless it be insufficient itself to conduct the whole of the discharge; or unless the body in its vicinity be a better conductor than itself. A lateral discharge, in fact, is only a division of a portion of the principal discharge, from an insufficient conductor to another, which can relieve it. Now the very purpose of a lightning rod is to provide a sufficient conductor for the electric fluid which may fall upon it, and which will never pass from it, if properly constructed, to any building in its immediate vicinity, from the construction of which all metallic substances are, of course, carefully excluded.

12. Thirdly, Dr. O'Shaughnessy refers to Dr. Goodeve's house having been struck by lightning, within twenty feet of a well constructed conductor upon the house of Mr. Trower, which was struck at the same moment, as falsifying the opinion that within sixty feet interval between conductors no accident can occur; but in another part of his report he attributes this accident, doubtless very correctly, to the vertical window bolts, which he has marked upon his plan, and which constitute a line of interrupted conductors to the ground. There can be no question that the discharge was diverted in this instance; but it does not appear that any damage was done to either house; and if damage did occur to the unprotected house, it would have been doubtless greatly increased by the absence of the conductor upon Mr. Trower's house.

It would of course be an act of the greatest folly and ignorance to place a similar line of bolts, or any other metallic fastening upon a powder magazine.

13. The case by no means proves, as Dr. O'Shaughnessy seems to think, "that occasionally, in tropical climates, there is such a vast disproportion between the intensity and quantity of the atmospheric electricity, and the conducting capacity of protectors, that the excess of the discharge must pass to adjacent

bodies” *unless those adjacent bodies are also of a metallic nature, and themselves good conductors.\**

14. Dr. O’Shaughnessy states that “in Chowringhee alone, in an area of one square mile, there are over 300 lightning conductors of proper construction, yet scarcely a season passes, but we hear of accidents within that area, and not unfrequently, too, in houses actually provided with conductors themselves.”

15. The electrical history of such a district must be extremely interesting, and it would greatly benefit science if authentic facts concerning it were collected, and published. It appears that Dr. O’Shaughnessy only mentions the facts upon hearsay, and such evidence is not of weight enough to counterbalance the direct testimony of competent witnesses, which abound on the other side of the question. I have no doubt that upon proper inquiry, Dr. O’Shaughnessy would find that the accidents which are said to have occurred in houses actually provided with conductors, have arisen from defective construction.

16. It is not supposed that a large number of conductors will avert electrical discharges from a district, though, if properly constructed, they will open safe communication for their passage to the earth.

17. Dr. O’Shaughnessy thinks, that “it is altogether unnecessary either to construct lightning conductors of copper, or to make them one inch in diameter,” but in this opinion I have again the misfortune to differ from that gentleman. The best authorities have recommended a rod of an inch in diameter as the standard size, experience having proved that such a rod has never yet been melted by an atmospheric discharge. It is certainly possible that a rod of less substance might be sufficient to conduct away a flash of lightning, but it is impossible to ascertain the minimum which would suffice, without incurring the

\* I must refer the reader to the succeeding paper, for proof of the error into which Mr. Daniell has here fallen.—W. B. O’S.



risk of failure ; and it is a point of very little importance, provided absolute protection be assured.\*

Moreover a rod of a less diameter would scarcely have sufficient strength to resist the mechanical forces which might be opposed to it.

18. The rod should be of copper, first, because the conducting power of that metal is very much superior to that of iron, being in the proportion of 1000 to 158. And, secondly, it is little liable to oxidation and corrosion. I do not think that the application of zinc to iron rods, in the way proposed by Dr. O'Shaughnessy, would be, by any means, efficient in keeping them bright, at the same time I would rather erect iron conductors, than run the risk of a total want of protection.

19. I have no objection to make the disposition of the conductors proposed by Dr. O'Shaughnessy, but I see no reason for placing them at so great a distance as twenty paces from the magazine. The most material points to be attended to, are their perfect metallic continuity, and their communication with the water of the subsoil. The instructions for the erection of lightning conductors are so minutely detailed in the two reports to which I have already referred, that I think it unnecessary to add any thing more at present, but it will give me the greatest pleasure to afford any further explanations in my power that may be required.

I cannot conclude, without again expressing my strong conviction of the necessity of procuring a revision of the opinion of the Governor in Council upon the subject in question with as little delay as possible.

I have the honor to be, &c.

(Signed) J. F. DANIELL.

TO PHILIP MELVILL, Esq.

&c.      &c.      &c.

\* I did not allude to a single conductor, but to a set of several combined.  
---W. B. O'S.

(No. 7.)

## SECOND REPORT FROM DR. O'SHAUGHNESSY TO THE MILITARY BOARD.

TO CAPTAIN DEBUDE,

*Secretary to the Military Board.*

SIR,—In compliance with your request that I should draw up a further statement of my opinions regarding the attachment of conductors to powder magazines, I have the honor to submit the subjoined observations to the consideration of the Military Board.

2. I regret much, that it is impracticable to accord to me the full measure of time desirable for the collection and accurate examination of the numerous facts bearing on the question now before us, to which I have obtained a clue, and many of which corroborate powerfully the views I entertain. I regret this the more, as I have the misfortune to differ in a slight degree with the opinions Mr. Faraday has given, while those which Mr. Daniell somewhat dictatorially professes, are widely at variance with mine.

3. I trust I may be pardoned by the Military Board for here publicly placing on record a tribute of my deep respect for Mr. Faraday's labors in electrical science. This department of physics he has made peculiarly his own. My presumption would be measureless were I to depart from the utmost modesty and hesitation, when I venture to persevere in an opinion, from which he ever so slightly dissents. I seek however for no more candid a judge than this illustrious philosopher, and on once more referring the subject to his consideration, I will bow to his contrary decision, with the full conviction that I had acted upon erroneous views.

4. Mr. Daniell's facts and arguments will be treated *ad valorem* in the subsequent observations. I have only to observe, that in the further discussion of this question, it would be well if he would condescend to use a more courteous tone, and to

recollect that his opinions, as well as mine, have to bear the scrutiny of individuals who are not very likely to be influenced by the mere reputation of any of the parties concerned.

5. The question before the Board, is this exclusively, "Are we to attach lightning rods to *powder magazines* : and if so, how are we to place them, so as to ensure the maximum of safety from every accident?" To this question and its bearings, we must limit this discussion. It is altogether a different matter from that with which Mr. Daniell has mixed it up, namely, the attaching of conductors to private dwellings, or ordinary buildings. All the circumstances differ so widely, that many of the most important of the facts and arguments which bear on one, are altogether inapplicable to the other.

6. The necessity for attaching lightning rods to powder magazines in tropical regions, visited by frequent and violent thunder storms, might at first sight appear so obvious, as to need no further consideration. The document (A) however shews, that of all the magazines in the territories of the Honorable East India Company, during a period of forty years, only one has been struck by lightning, namely that at Dum-Dum, on the 1st of June 1836. It will be seen, as we proceed, that the term "magazine" was scarcely applicable to the building then destroyed.

7. I stated in my first report on this subject, that I considered a powder magazine *when properly constructed*, arched and rounded in its outlines, of low elevation, and free from metallic masses in its walls and roof, to be as little exposed to accident as an equal area of soil or terrace, the chances of which being struck by lightning are so infinitely small, as scarcely to deserve serious consideration. The Dum-Dum explosion took place in a common building of square form, formerly a godown. It was not a magazine, but a mere store-room for the powder used for the laboratory. It stood in the corner of a yard crowded with guns, gun carriages, heavy metal tools, shells, and other powerful conductors of electricity. It

was exactly what it ought not to have been, and the explosion which occurred, by no means invalidates the position, that the well constructed magazine has but an infinitely small chance of being struck by lightning.

8. The questions now arise—*First*, Would even this minute contingency be obviated thoroughly by a lightning conductor being attached to the magazine, on the method advised by the Honorable the Court of Directors? *Secondly*, Can the conductor itself by possibility become a source of collateral danger?

9. I will take up each of these questions in detail. I grant in the first place, as the foundation of the argument, that metallic conductors have the power, when properly placed, of SILENTLY drawing off *considerable* accumulations of electricity from the clouds; and, secondly, of guiding away to the earth *considerable* direct *explosive* discharges or *flashes of lightning*, without permitting the electric matter, whatever it be, to impinge *directly* on any adjacent bodies.

10. The extent to which the protecting influence of a conductor extends laterally, has long been a subject of attention and discussion. Leroy, in 1783, asserted that a rod four to five metres high, above the roof of an ordinary building, defended a circle of sixteen metres radius, or more than three times the distance of its own elevation above the roof.

11. The Academy of Sciences in 1823, in a report to the Minister of War, adopted the opinion of M. Charles, that the circle protected was of a radius double the total elevation of the conductor *above the roof*. This opinion seems to have been generally adopted, but must be modified in consideration of the facts which M. Arago has collected, and some which have come under my own observation.

12. If masses of metal of any kind enter into the construction of a building, the protecting influence does not extend to the distance above mentioned. The powder magazine of Purfleet, provided with a conductor erected by Franklin and Cavendish, was struck by lightning twenty-four feet from the



nearest part of the conductor, which was twenty-six feet above the roof—the distance being less than the simple height. The parts struck contained a metallic cramp.

13. Dr. Winthorp, of New Cambridge, reports, that a tree was struck by lightning, when but fifty feet from a conductor attached to the steeple of a church, which may reasonably be supposed to have been at least fifty feet higher than the tree.\*

14. All that we are entitled to infer from the facts before us, is—that in order to give safety from direct and *ordinary* discharges, we must erect so many conductors, that no point of the roof shall be further from the conductor than twice the length of the height of the conductor above the level of the roofs; and this applies only to flashes from clouds in a *calm* atmosphere, and *above* the building. The area of protection is unquestionably much contracted, under the circumstances, so common in India, of a thunder cloud being blown with hurricane velocity across a plain, before a furious squall. Nothing but a line or chain of conductors connected together by horizontal metal bars, and surrounding a building, can possibly protect it from discharge under these paroxysmal storms. This is the opinion I offered in my first report, dated the 27th December 1838, and I have now but to repeat, that one or even two conductors are not an adequate protection; and to *ensure* safety, several must be erected. The subsequent considerations will probably bear me out in repeating, that a properly built magazine, with but one, or any inadequate number of conductors, is in greater danger of explosion, than if it had none; and that with ever so many conductors, these should be placed at a considerable distance from its walls.

15. I proceed now in the attempt to sustain my opinion, that “A magazine with but one, or any inadequate number of conductors, is in greater danger than if it had none.”

\* For details regarding the case, see *Annuaire* for 1838.

16. The cause of a lightning discharge selecting the conductor is to be traced in the law of electrical induction, which I hope to be pardoned for briefly exposing.

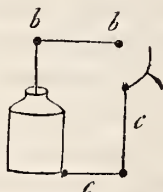
A cloud highly charged with electricity of either kind (let us say, *positive*) approaches the earth, and by the approximation causes the natural electricities of the earth to separate, and that of the *negative* kind to accumulate at the surface opposite to the cloud. The intervening particles of air are thrown into a polar state. The cloud is attracted by the earth, the electricity of which becomes most accumulated on the buildings and objects on its surface, in proportion to their degree of conducting power. At length the resistance to the rushing together of the two opposite electricities is overcome, and a discharge by explosion takes place, the best conductor on the earth receiving all the electric discharge it is capable of conducting *in the time* the discharge occupies. Of all such bodies a pointed metallic rod is the most likely to receive a discharge, and will lead off the greatest quantity thereof to the earth.

17. Mr. Daniell has indeed stated, that a pointed bar must cause a silent discharge without explosion.\* I am unable to comprehend how Mr. Daniell could have fallen into such a misconception. The whole history of lightning accidents, teems with instances of well constructed *pointed* rods having been struck, and the points melted. Look at the accident to Mr. Trower's house for example.† The conductor is faultless in its construction, and the *flash was seen to strike it* by Dr. Goodeve.

\* "*A pointed conductor will indeed draw off silently and safely, a considerable portion of electricity from a charged cloud, but it can possess no power of determining a disruptive, and destructive discharge, at a point where it would not otherwise occur.*" *Mr. Daniell's paper.* See para. 9.

† Described in my first report.—W. B. O'S.

But let Mr. Daniell try this simple experiment. Let *a* be a Leyden jar, *b* a rod and ball connected with the inner coating, *c c* a rod and ball connected with the outer coating, *b* represents the excited cloud, *c c* the excited surface of the earth. To the ball of *c* apply one branch of a *pointed* discharging rod, and then *RAPIDLY approach* the other point to the ball *b*. A hiss is heard for an instant



and a loud explosion then ensues. If the point had been brought *very slowly* towards the ball *b*, there would have been nothing more than a silent, or at most a hissing, discharge. Mr. Daniell will perhaps admit that it is the same thing, that the earth carrying the conductor should approach to the cloud, or the cloud approach to the earth; and he will see in this experiment that it is simply the degree of velocity of the approach that governs the nature of the discharge. The electric cloud in a calm atmosphere will give off a constant and quiet stream to the rod—but let the cloud be driven onwards before the wind, or drawn within the vortex of mechanical electrical attraction, and then *EXPLOSION will inevitably ensue*.

18. So much for the cause and nature of the direct lightning flash to a *single pointed conductor*. Let me beg the Board to honour me with their attention to this distinction, as it is essential that no misconception should arise.

19. An *explosion* then, it must be admitted, may occur to a *pointed* conductor. I have next to shew that this explosion, or the flash, or the amount of the electricity passing (which I use as convertible terms) may be so much greater in quantity than the single conductor can convey *in the time* of the discharge, that a considerable part, nay, the whole of the excess, must pass to the adjacent objects. To make my meaning clearer;—Let us suppose the cloud to be charged with 1000 parts of active electric matter—let us *assume* the conducting

power of a lightning rod to be equal to 250 *in a unit of time*; I believe that the 750 parts in excess, will *in the same unit* or instant, pass off in *every direction* to surrounding objects, striking those which offer it the best conducting path.

20. In proof of this assertion, I refer to the accident to Dr. Goodeve's house, which I have already reported. Dr. Goodeve's house is twenty feet from Mr. Trower's. Dr. Goodeve while walking in his verandah *saw* the lightning strike Mr. Trower's conductor, and at the same moment strike his own house; taking, as might be anticipated, the window bolts, and other metallic bars in its course.

21. Let me cite another and a most important fact from M. Arago's rich collection. The house of Mr. Raven in Carolina was provided with a conductor formed of an iron bar, fixed in the roof—a brass wire outside the wall thence led to another metal bar planted in the earth. The conductor was struck by lightning, the wire was melted as far as the ground floor—the lightning then pierced the masonry of the wall at a right angle, exactly where a gun was standing against the wall in the kitchen; the barrel was struck, but uninjured, the stock broken, and thence the electric matter passed to the ground.

22. Here we have clearly lateral deviation from a conductor, *and the excess passing to the nearest conducting object*. The wire was disproportionately small for the quantity of the discharge; it was fused, and the excess passed to the adjacent conductor. It will be objected, that this would not have happened, had the lightning rod, or wire, been of the ordinary dimensions, that the conductor could not have been fused, and the lightning could not have left it. In reply, I point once more to Dr. Goodeve's house. Mr. Trower's conductor was not melted, and yet Dr. Goodeve's house was simultaneously struck.

23. Look to another fact, cited by Arago. A French vessel of war, *La Junon*, was running before a brisk gale. A copper conductor of twisted wires led from the main-mast head to



windward, and was secured by copper strips to the ship's side. A flash strikes the top; and a flash is seen by all on board, at the same instant, to leave the conductor about on a level with the cap of the main-mast, and to dart into the water over the *lee* bulwarks. This is a clear instance of an excess of electricity leaving a conductor through which it cannot force an instantaneous passage. All that the conductor could convey was borne off to windward—the rest opened to itself another and less difficult route.

24. It might here be the most appropriate place to discuss the question, What is the greatest mass of metal a flash of lightning can fuse?—When we remember that the surface of a cylinder increases by a simple multiple of the diameter, while the mass increases as the cube—that every fact shews it to be the *surface* which the electricity pursues,\* while its calorific effect must be in the inverse proportion to the mass—it will probably seem that the surface may be too small to convey a given quantity of electricity, although this be insufficient to melt or even to heat the *whole mass* of the metal.

25. Mr. Daniell, in reference to the efficacy of single conductors, enters on the much disputed question, as to whether these *attract* lightning, or are merely passive conductors for its conveyance. He takes the latter view, declares the former to be *absurd*,† and compares the conductor to a water-

\* Mr. Harris, a high authority on electricity, makes these remarks respecting the surface action of conductors :---

"The conducting power of a metallic rod has but little relation to its solid contents, but is principally dependent on its surface, from which cause the mere gilding of a ball of wood is found to conduct a proportionate electrical discharge with the same facility as if the ball was a solid mass of metal, hence a less quantity of metal formed into a hollow tube would be as a conductor, even more effectual than a solid rod of the same diameter, because its superficies would be increased!" *Harris on Electrical Conductors*, p. 31.

† The Board are referred to the marginal note at para. 17, for Mr. Daniell's own admission, that pointed conductors "draw off" a considerable portion of electricity, &c. &c. *Drawing off* and "attracting" are very like synonymous terms.--W. B. O'S.

course, a favorite illustration of his as it occurs in more than one part of his published writings. Practically, it is but of little consequence whether the conductor be active or passive; but of all the substances excited at the moment—engaged in the vast induction we have described—of the cloud, the air, the earth, and the things on its surface—the lightning rod is that in which the induction is the most powerful, and towards which the explosion is therefore the most likely to occur. Call it passive, if Mr. Daniell so pleases, but the electric fluid is more active in it than any where else. The discharge takes place;—the first instalment, or the head of the column rushing to the point of the conductor, heats the air through which it passes—rarifies it, and diminishes the resistance to the outpouring of the rest of the electric accumulation. The excess, unable *in a unit of time* to pass over the bar, rushes to surrounding objects.\* Did it occur to Mr. Daniell that no prudent man builds his house by preference on the bank of a mountain water-course? The water-course is doubtless *passive*, and it will quietly and silently carry off the stream of an ordinary

\* The Board are requested to consider *Mr. Faraday's* opinion on this point :—

“The fact however is, that disruptive discharge is favorable to itself. It is at the outset a case of tottering equilibrium, and if time be an element in the discharge, in however minute a proportion, then *the commencement of the act at any point favors its continuance* and INCREASE, and portions of power will be discharged *by a course which otherwise they would not have taken.*

“The mere heating and expansion of the air itself by the first portion of electricity which passes, must have a great influence in producing this result.

“As to the result itself, we see its effect in every electric spark, for it is not the whole quantity which passes that determines the discharge, but merely that small portion of force which brings the deciding molecule up to its maximum tension; then when its forces are subverted, and discharge begins, *all the rest passes by the same course* from the influence of the favoring circumstances just referred to, and whether it be the electricity on a square inch or a thousand square inches of charged class, the discharge is complete. Hereafter we shall find the influences of this effect in the formation of brushes, and it is not impossible that we may trace it producing the jagged spark, and forked lightning.” *Faraday's Experimental Researches*, p. 451. para. 14, 17---20.

shower; but the rains may sometimes fall in excess, the stream swell to a torrent. As the waters require a *given time* for the efflux of a certain quantity, the excess inundates the bank, and the house is overwhelmed. The parallel seems to me to be complete, although Mr. Daniell's ingenuity may probably succeed in placing the question in a different, and less intelligible light.

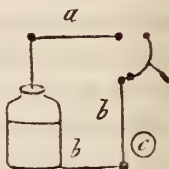
26. With very great respect for Mr. Daniell's acquirements, I cannot help wishing he had the opportunity of increasing his practical knowledge, by observing a tropical storm. Had he seen the whole horizon one dense mass of electric clouds—had he heard crash after crash, a hundred times repeated, like the broadside of a line-of-battle ship—had he seen the lightning strike (as I have) three times within a few seconds, and not a hundred feet from my house—had he been in a storm in which thirty-one persons perished,—he would very probably participate in my idea, that electrical accumulation very commonly surpasses the conveying power of ordinary conductors; and remembering that “when discharge begins, all the rest passes by the same course” (see Faraday's note, p. 302)—the consequence might be as apparent to his mind as to mine, that the excess must pass to the most adjacent objects, selecting among these the best conducting materials.

27. These facts appear to me sufficient to warrant my opinion, that there is more danger in giving one conductor to a magazine than in leaving it unprovided altogether. It appears to me, further, as I have already stated, that even from any number of conductors there is another source of danger in what I term the *lateral discharge*, unless the conductors be placed at a considerable distance from the magazine.

28. As much controversy has arisen regarding this lateral discharge, I wish to explain clearly the meaning I attach to the term. If this be patiently considered, I think it will be found that it is more about the fitness of words, than the nature of the facts, that the difference of opinion exists.

29. I select an experiment with the Leyden bottle to exemplify my statement.

Let *a*, be a ball and wire connected with the inner coating, *b b* with the outer coating of a charged bottle—let *c* be a metallic ball placed near, but not touching the rod *b*; when the discharge is made by bringing *a* and *b* into contact, by means of the moveable rod *d*, as the electricity passes through the rod *b* a spark takes place between it and the ball *c*, although the ball *c* is out of the direct circuit.



30. This spark all electricians have seen ; its existence is *universally admitted*. The ball *c* may be connected with the ground, or with a long wire, and the spark will still pass. If the ball be connected with a wire, and the opposite end of the wire with the apparatus called “Volta’s cannon,” charged with inflammable air, *at the INSTANT* of connecting the outer and inner coatings or discharging the jar, the cannon is exploded also. Gunpowder, spirits, and other inflammable matters may be fired by this spark, although it is manifestly far *out of the course of the MAIN discharge*.

31. There have been several attempts to explain the occurrence of this spark. The older electricians, and Henry of New York, regard it as the effect of induction in the bodies adjacent to the main conductor ; that it is not a direct emanation of electricity from the conductor to the lateral objects. Mr. Daniell says it is only the *EXCESS* from an *insufficient conductor* which passes to the adjacent object. This idea any one possessed of a Leyden jar and a few pieces of wire may set aside by a simple experiment, when he will find the success of each attempt at obtaining the lateral spark increased by increasing the mass of the prime conductor. Mr. Faraday however supposes this extra spark to be a direct expansion of the electricity—that with a good lightning rod it can be but small,



and then not to badly conducting matter, as wood or stone, but only to neighbouring masses of good conducting matter, as the metals, which either ought not to be there, or if there, be in metallic connexion with the conductor. It is on this point that an apparent difference exists between Mr. Faraday's opinions and mine.

32. It is however always easy to obtain this spark to the knuckle, and to many other imperfect conductors. Further, the spark now alluded to, whatever be its cause or nature, may be expected to increase in power in direct proportion to the quantity of electricity in the original flash. If with a quart Leyden jar we can procure, as I have repeatedly done, a secondary or lateral spark half an inch long, capable of inflaming gases and gunpowder, I think I am not straining the inference too far, when I believe that the discharge of 10,000 acres of excited cloud may cause a secondary spark or flash capable of passing through the wall of a magazine and exploding its contents. Mr. Harris has indeed recently asserted that increasing the primary spark does not increase the secondary one; but I must state, with every respect to this gentleman, that I have repeatedly exhibited to my classes, long before his paper was published, the experiment described at para. 30—and that I have often shewn, that while success is uncertain with a small jar, it is infallible with a large one. I had not the means of measuring the spark, but its increase was plainly visible, and palpable, as we increased the battery and its charge. The magazine, moreover, contains powder barrels lined with copper, and even though no flash or spark pass *through* the wall, the barrels themselves may give sparks to each other under the influence of the electricity passing *outside*. Mr. Faraday has shewn in one of the most perfect of all his matchless researches, that without the direct conveyance of electricity, the *walls* of an apartment in which a common electrifying machine is worked, are in a state of active electrical excitement.

33. Mr. Harris, who is doubtless a highly accomplished elec-

trician, has recently published some views regarding this spark, which require a cursory notice. Mr. Harris, when ten years ago he proposed his system of ship conductors, was either unaware of the occurrence of this spark, or held it in such little respect that he actually led one of his conductors *through* the after powder magazine, and he has recently induced the Lords of the Admiralty to order this system to be adopted through the navy.

34. Mr. Harris admits the *existence* of the lateral spark, but attributes it to what is commonly called the "residual charge." Thus after discharging a battery, it is well known that a small secondary charge collects, and will give a spark or shock to any conductor touching both the coatings.

35. I repeat, that it is but little consequence what the *cause* or *nature* of the spark in question be. It is its *existence only* that should influence this question. But if Mr. Harris will repeat the experiment described at para. 30, he will find the explosion of the cannon to occur *at the very same instant of time* as the discharge of the jar, and that *after this*, he will still succeed in obtaining the residual discharge on contact of the inner and outer coatings.

36. The accident which befel Her Majesty's ship Rodney last year in the Mediterranean, shows the occurrence of the lateral, or extra discharge in a form which scarcely admits of mistake; the flash struck the main-top-gallant mast, and escaped from the mast seven feet above the deck, and was seen by all on deck to go over the lee-nettings, and strike the sea a short distance from the ship.

*Sparks were seen by many of the officers between decks*, and many of the men declared they saw balls of fire on the lower deck, and ran after them to throw them out.

Here is another instance of lateral or indirect effect. At the moment Dr. Goodeve's house was struck, Mr. Hutchins sitting in a room on the ground floor, several feet from the course of the lightning, received a severe shock. Whatever produces

a shock will in greater quantity cause a spark, and if the spark be but the tenth of an inch in length, it can inflame powder, which is the great matter we have to guard against.

37. In connexion with this subject M. Arago gives us some very useful hints.

A few detached sentences may be quoted to shew M. Arago's ideas :—" Lightning once engaged in a metallic bar of sufficient dimensions, and well constructed, does not quit it to strike the materials of which buildings are usually constructed, but in SUCH SMALL QUANTITY that *no injury can arise*, nor even any appreciable effect."

38. M. Arago is here writing of ordinary buildings. But what would produce no appreciable effect on these, would cause the explosion of a magazine.

39. M. Arago proceeds to ask, "Should conductors be placed within, or external to, buildings?" The Board will see how this bears on Mr. Harris' ship conductors, which *run THROUGH the after magazine*. "I confess," says M. Arago, "that on this point I would be much less affirmative. Voltaire used to say, 'there are some great lords not to be approached without extreme precaution, and lightning is one of them.' I think the illustrious author is perfectly right, especially when I recollect the case of Mr. Raven's house, already alluded to. Doubtless the conductor was not sufficiently thick; but here is an occurrence in which all was apparently in good order, the conductors acting as well as could be desired, and nevertheless there was a deviation of the electric matter. \* \* \*

"The 31st July 1829, in the Jail of Charlestown, at the moment of an immense thunder clap, 300 persons received a violent shock, the effects of which lasted for some seconds. \* \*

"The jail had three good conductors, eighteen feet apart, the building was untouched by the lightning." \* \* \* (See the *Annuaire* for 1838).

40. How did the inmates receive this shock? M. Arago refers it to the large quantity of iron the building contained.

Can I be accused of exaggeration, when I express my belief, that the same cause, which independently of direct discharge occasioned the shocks here alluded to, might in a magazine of powder barrels be sufficient to occasion minute sparks, and the consequences to which these will naturally lead ?

41. Lastly, M. Arago alludes to the proposition of Toaldo, sanctioned by the Academy of Science, that for powder magazines, the conductor should be placed at two or three metres from the walls, on vertical masts. He approves of the idea in principle, but describes its practical application as too expensive, owing to the number of conductors which would be required.

42. But there is one most important experiment by Prof. Henry, of New York, to which I earnestly invite the attention of the Board. I wish my humble voice could reach the Lords of the Admiralty with effect, and that by an appeal to the good sense of men, who have only public interests at heart, and who have no previous scientific doctrines to combat for, that I could induce them to pause before they provide the British Navy with the dangerous conductors Mr. Harris has led them to adopt. Professor Henry led a copper wire, forty feet long, from the prime conductor of an electrifying machine, into a deep well full of water. On working the machine, from every part of this wire large sparks were obtained, and a voltaic cannon was fired by one of these sparks close to the surface of the water. Nay, more, Professor Henry repeated this experiment on a lightning conductor attached to his house, and properly constructed in every way. From every part of the conductor sparks were given off.

43. But even in the paper by Mr. Faraday, I find ample admission of many of the facts I have contended for. "It is no doubt true, that low rounded buildings, such as I understand powder magazines to be in India, are but little liable to be struck by lightning." "It is also I think very probable that a lightning conductor may, under certain circumstances, cause an electric discharge to take place, where none would have occurred, no conductor being present."

44. Let us hear what Mr. Daniell himself is candid enough to allow. (See para. 11 of his report).



“ There can be no doubt that a conductor in the moment of a discharge of electricity passing through it, influences in a degree all good conducting substances in its immediate vicinity, by induction, but no discharge will take place from it to any neighbouring body, *unless it be* INSUFFICIENT ITSELF to conduct the whole of the charge.” \* \* \*

45. To this I have only to add, that since my first report (Dec. 1838), in a paper published by Mr. Sturgeon in the *Annals of Electricity* for October 1839, precisely the same ideas as those I entertain are fully and ably advanced. Mr. Martyn Roberts, a well known electrician, advocates the same views—such also were the opinions of my admired and esteemed friend James Prinsep, whose name alone is full proof, to the Indian community at least, of the sterling value of the conclusions he arrived at.

46. From the consideration of all these facts and reasons, I think myself justified fully in adhering to the opinions expressed in my first report. I do not, and never did, deny the protecting power of well constructed conductors erected in a given number. I stated distinctly all the circumstances from which danger might result, and how I conceived these might best be avoided. I freely admit copper to be superior to iron, but I wished to avoid expense in introducing the system I proposed. On that system I conceive all danger would be obviated, while in the method proposed in the letter from the Honorable Court at least two highly probable causes of accident remain in full operation.

47. Having obtained through your Board the sanction of Government to the publication of the papers by Messrs. Faraday and Daniell, I will take care that the views therein contained shall be generally made known. In an early number of the *Journal of the Asiatic Society*, I propose further to print an abstract translation of M. Arago's remarkable Essay “*Sur le Tonnerre*” which I saw for the first time when it was sent to your Board, along with Messrs. Faraday and Daniell's papers. The interesting facts with which M. Arago's memoir abounds, will doubtless lead many competent observers to study the phenomena and effects of lightning on the grand scale in which these may be witnessed in India. A multitude

of facts will doubtless be thus quickly accumulated, and from these we may reasonably hope to found certain opinions on the points still open to doubt and discussion.

48. The electrical history of Chowringhee I will take care to collect for Mr. Daniell's gratification, with the precision he is good enough to recommend me to observe. I only regret that this is not the appropriate place for noticing the very courteous remark he has made upon this topic.

49. I designedly forbear from all observations on the attachment of conductors to *ordinary* edifices, whether private or public. No one is more convinced of their value than I am, but I am at the same time as satisfied that as they are usually constructed they are sources rather of danger than of protection; referring therefore, with great respect, to my first report, I can only modify the suggestions therein given to the extent, that I believe six to ten feet interval between the walls of the magazine and the conductor will suffice, instead of the more considerable space I first recommended. With this sole exception, I am deeply impressed with the belief that it were wiser to commit our magazines to the same chances through which they have passed unharmed for the last half century, than expose them to the possible dangers I have described to proceed from the attachment, in the ordinary manner, of an inadequate number of conductors erected at but one foot from their walls.

50. To economize materials, it would be advisable to erect a wall as high as the roof of the magazine, ten feet distant from it all round. At each corner of this wall a conductor twenty feet higher than the roof should be placed, and properly led to the ground as deep as the water level. Between these conductors, at every ten or fifteen feet, I would place a pointed bar six feet long, inclining outward at an angle of  $45^\circ$ ; all these bars should be connected at their bases by a broad strip of sheet copper led along the wall.

I have the honor to be, Sir,

Your most obedient servant,

W. B. O'SHAUGHNESSY, M. D.

*Assist. Surgeon and Prof. Med. Col. Calcutta.*

*Medical College, 22d June, 1840.*

*Second Paper on a march between Mhow and Sagur. By KHAN ALI.*

*On the Huli in Malwa.*

The traveller in India can never be without something to interest him, so little do we know of the country, and of its inhabitants;—thus, when no antiquities were at hand, we amused ourselves by attending the different ceremonies of the Huli, which was playing all round us.

The Huli usually to be seen in our well regulated cantonments, or the towns of our Provinces, attracts but little attention, the leisure rendered so interesting by its classical associations, being repressed by order and decorum; while dirty water thrown about, constitutes nearly all the fun; and the bon-fires are but a scanty collection of faggots, hardly sufficient to warm one's hands by. The festival to be appreciated must be witnessed in all its native rudeness in the towns and villages still ruled by Hindoos, far removed from Mussulman prejudice and European police. (1)

In the villages in this neighbourhood, for instance, there is one grand general bon-fire, (2) which sometimes rises to a height, beside which an Eton 5th of November one would look dwarfish. The first stick is planted on the 5th Sudi of Magh. (3) The potail, the village priest, the boys and the idlers, assemble round the well known spot set apart for the purpose, and the ground having been swept and sprinkled with

1. It was at first intended to note only such peculiarities of practice as we might observe in the celebration of the Huli in this part of India, but it was found impossible, in many cases, to separate local from general customs, and my remarks have thus swelled into an essay, which though perhaps misplaced here, is allowed to remain, as I am not aware of any detailed account of this festival in English; but you are at liberty to omit the description, should any such have been published. The customs more peculiar to this neighbourhood, are pointed out in the text.

2. In towns each muhul has its own bon-fire.

3. Improperly, the full of the moon being the orthodox time. This advance of ten days is very unusual in our provinces, and is by no means general even here. The 5th, however, the first day of Bussunt is, every where, one of much sanctity; pooja is said to Krishna and Rukmini, to Camdeo and his wife Ruti, and it is proper to feast Brahmuns, the family priest, and friends. The whole month of Magh, indeed, is esteemed by the Vishnooes holy, above all other months, and serves as an introduction to the gaieties of the Huli, in memory of Krishna's sports at this season of his minstrelsey "which delighted bees, birds, and deer," and "drew down the rude applause of the Gopis and Gopas," and to his refreshing himself in the Jumna after his fatigues. Laughing and singing, and clapping of hands, and bathing should be the principal occupation of the month. The last is the most important duty: it should commence from the 11th Sudi of Poos, and continue to the end of Magh, and if regularly performed, (when half the rising sun's disk appears above the horizon,) washes away (according to the Pudum Parau) all sins.

water, the poojari proceeds to hallow it, with certain holy mutterings and a few grains of rice, a little betel, and haldi; and then fixes in the centre, in a small hole dug for the purpose, a branch of Semul (cotton tree) or more usually, a plant of Renda (the Castor) round which he ranges five cakes of chinna. (4) This is called *Huli ka har* (or dunda dhurna,) and the spot "the Huli," and for the whole ensuing month nothing is thought of among the boys, but how to steal wood, grass, cakes of cow dung, &c. to heap around it. The Huli however is played languidly till the 8th Sudi of Phalgun, the Hul Ashtuk or Phāg, from which day till the full moon, business is dropped, and as at the Saturnalia, there is no betrothing, or marrying, no new work should be undertaken, debtors are not harassed, (5) schools are closed, &c. But it is from the 11th, the Amarduki, that they begin the sports in earnest. The boys have by this time grown more bold, and rove about in all directions to feed Huli Mata. In the conduct of these foraging parties they sometimes, and ought always, to mimic the bustle and preparation of an alarmed camp, as enjoined in the Brimha Vaidertuk; "as if you were rushing to get your weapons," says another Puran (6). One makes off with a door, another runs away with a bed, and some old woman perhaps, who has gossipped too long at the well, finds on her return home, half her hut unthatched. To make the matter worse, nothing that has actually reached the Huli, can be taken back; though if the thieves have been disturbed at their work, and drop their prey, it is then redeemed by the owner. Sometimes indeed a sulky person will insist on taking his property from the very pile, but the boys so torment him with abuse and raillery, shouting in his ear the dreadful and infallible penalties of such sacrilege, the death of the first-born, &c., that shame, or fear, generally induces him to withdraw his claims, and to join, with as good a grace as he can, in the general grin.

At last the longed-for night, the full of the moon, has arrived.—For some days previous, the women have been busy making little cups of cow-dung, called bullas, in the centre of which a hole is bored, so that several may be strung together into a necklace. Each head of a family, bearing in his hand, (like some Greek suppliant with his ever-

4. The local name for cakes of cow-dung, more commonly called kunda, ussara, or gobur.

5. In the day similarly kept sacred during the Jewish Huli, the Passover, money matters might be attended to;—a characteristic distinction.

6. From the clashing of the sticks together on this occasion, and the sound of kil kil made by it, some derive the name of Holica, others from Hodui to go, the d and l being changeable.



green thallus) a plant of Castor, (6) to the top of which an ear (bali) of jao has been attached, and taking with him as many cow-dung necklaces (bulla ka mala) as there are males in his family, proceeds to the Huli, round which the old and young of the village have collected. The potail having arrived with some little state, and the noisy accompaniments of singing women, tom-toms, blowing of horns, &c., the poojari squats near the pile, his implements of worship, grain, coconuts, rachna, (mixed haldi and lime) before him, and the usual pooja *ritē peracta*; either he, or the head man of the village sets fire (7) to the Huli, upon which all the malas have been previously thrown, each householder however reserving one, which he takes home again. (8) The moment the pile begins to blaze, they look anxiously to which quarter the flame is driven by the wind. The East is the fortunate point, the West and North are also good, but the South is the sign of blight and famine. Ills also follow, should there be no wind, so that the flame should rise up straight. (9)

The Huli is next perambulated seven times (10) by the assembly, who

6. Most of these ancient rites, now diffused through foreign countries, have been so distorted and diverted from their original intent, by the adoption of new creeds and other causes, that the analogies can be sometimes but faintly traced. The practice here mentioned of hearing houghs, may have a like origin with the similar one of the ancient and modern Jews, at the feast of tabernacles; the suspending branches to their houses of the Chinese and Japanese, at the festival of the new year, and the like superstitious ornamenting of our churches at Christmas.

7. Some think that the Huli should be fired by a light newly struck from a steel, or perhaps more correctly from two pieces of dry wood, the arm of antiquity; but this distinction is frequently neglected. In the Deccan the outcasts have a separate Huli, from which a lighted log is brought by force, to serve as a match for the grand pile. See for an interesting account of this, the Sooni paper, Bomhay Transactions, vol. 3.

8. This has probably some connexion with a superstition (not wholly unknown on other occasions in India) which was common to the Greeks and Romans, with whom it was usual to carry home part of an oblation for luck's sake. (Potter, whom with Alexander ah Alexandro and Boulanger (l'antiquité dévoilée par ses usages,) I have principally consulted for the parallel rites of ancient Europe.) The reserved mala is kept in the house during the year, and on the succeeding Huli is taken and burnt with the rest, and a fresh one laid by in its place.

9. The Greeks derived omens in a similar manner from the direction of the flame of a sacrifice. See Potter's Antiquities: I, p. 371.

10. Three times is the more correct number of perambulations according to the Pudum Puran, and is certainly that which has been, in all times and nations, most common, as in the "Deasil" still performed round Cairns on Sundays and holidays in our own country. It is also the number most usually adopted in India on this occasion, (Bomhay Transactions, vol. 3. Pinkerton's Voyages and Travels, III, p. 602, 371. Pliny 28 : 2; Potter II : p. 253, &c.) but the use of the number seven seems to be quite as ancient. A cow was led seven times round the temples at the Egyptian festival commemo-

as they walk round, throw rice, &c. into the flame, and dip into it, so as to scorch the jao, (11) their castor plants, mutter prayers and vows, and offer up numuskar with joined hands. This "Purduksheva" over, the bugulgir (or embrace) succeeds. Friends embrace each other (12) as if they had long been separated; (13) many exchange their reserved malas or castor trees in token of regard; the chela touches his master's feet; the son those of his father; and the "labratum" on this occasion is not unfrequently extended by the young to any respected senior.

The scene now becomes very lively. Each kisan (cultivator) hastens to secure from the fire a half-burnt stake, which he sets up in the centre of his most productive field, where under the name of Huli ka Raja, it acts in a triple capacity, attracting good crops, averting evil eyes, and serving like its classical parallel, the "*ruber hortorum custos*," to frighten away birds. (14) Parties may also be observed scampering away in every direction with lighted bullas snatched from the flames, to replace the culinary fire at home, which has been religiously extinguished, according to a superstition general all over India, and which many of the poorer Mussulmen have adopted. (15) Great pains are taken in a few families to keep this fire alive during the year; its accidental extinction is regarded as the sure precursor of some great misfortune, and there seems to be, or rather to have been, (for the custom

rating the search for Osiris; and the Jews still seven times circle their altar at the feast of tabernacles. Boulanger and many others, devote whole pages to the mystic No. 7—See Moore's Pantheon, 300. Burder on Exodus xx; 10, &c. &c.

11. The ear of barley is taken home and carefully preserved, being considered of much efficacy in the cure of various diseases. The castor plant they throw away.

12. This custom has probably lasted longer, and been more generally diffused, than any other of these ancient rites. Marco Polo mentions it as a principal ceremony of the white feast of the Tartars. In Persia, at the Nou Roz, there is no end of kissing; and our own new year's compliments will not be forgotten.

13. This custom is in some sort repeated at the Dewali, and Beeja Dusmi. The ingenious theorist Boulanger would have been glad to seize on it in support of his favourite arguments—See Ant. dev., 1, 233.

14. See Tod's Rajasthan, 2; 662.

15. In the north of England a remnant of the Yule clog is put by to light the next Christmas fire with, and the place where it is kept is considered safe from demons. In some places the new year's gift which the king sends to his vassals is fire, which being brought, all the old fire is put out; and this new fire all the neighbouring people are obliged to fetch every one for himself, upon pain of incurring the guilt and punishment of high treason—(Montaigne's Essay on Customs and Laws.) At the Chinese festival of the new year, every one carries a lighted candle or two to the temple. These superstitions relating to fire are very ancient, and date doubtless from those times when religious rites, as inculcated in the Vedas, consisted chiefly of Homas.

is nearly exploded) an objection on the part of either borrower or lender, to its being removed from a neighbour's hearth. In travelling among the Bheels of Bagur, we met with some tribes among whom the prejudice on this point was very remarkable. (16)

These more solemn ceremonies ended, riot is let loose; now (17) commences the "kubeer," the abuse, the foul language, which all join in without a feeling of shame or of anger. (18) The children are not the least active in this war of words, and at the pitch of their voices is a "Galian gate hai ke sunnesi husi ati hai" (19), being incited to it by their elders, as it is believed they will thus lose all fear of bhoots, and jins. (20) Many of the more respectable people return about this time to their homes to be present at the interesting ceremony of burning the family Huli. The middle of the room having been carefully swept, and smoothed with cow dung, the *pater familias* describes with "chundun" a figure of a square, ornamenting the edges and centre with some pattern, as of a lotus leaf, and in the centre of the interior lotus, raises a small heap of dry sticks, bullas, &c.; then taking a roll of thread in his hand, and measuring every one present in succession, he cuts off for each individual, tall or short, a portion of the thread, equivalent to his height, and lays the pieces one after the other on the little gur ka Huli; he does not forget also to cut off a thread for himself, and making a guess at the height of any absent relation or intimate friends. This thread may be considered in the light of a scape goat, for as it disappears in the flame, all the griefs, sickness, and ill luck (if not the sins) of the persons included in the rite, are supposed to be dissipated, and burnt with it. (21) The ceremonies just before celebrated

16. The fires which ought not to be allowed to go out, (see Ward's Hindus) and which in former times were as carefully watched as was ever the undying flame of Jew, Sabian, or Vestal, are now hardly to be found but in the families of Agnihotra Brahmuns, to which class however the custom is by no means confined exclusively, as might be suspected from Ward's note; the practice, apparently from the difficulty and inconvenience of its observance, has fallen into general disuse. See A. R. 260.

17. Or ought to commence, but in reality the licence of the tongue begins at least a week before the burning.

18. Any fool, says the Brimha Vaiverta, who does not do so, goes to hell for as long as the sun and moon reign.

19. The quaint expression of a little Cusi manual of the yearly festivals; some parts of it have been copied into the "Hindu selections."

20. In England fires are in some places lighted on Christmas eve, to drive away evil spirits.

21. A zealous analogist would suggest some resemblance between this rite, and the worship during the Compitalia of the Lares, to whom it was at that time customary to offer small images of wool, one for every member of a family. (Pompeius Festus ad verba Lania et Pila.)

at the public Huli, are here also repeated in miniature; the offerings, the lighting of the pile, the seven parikramas, the bugulgir, in which last, those have the opportunity of joining in homage, whom sickness or accident may have confined to the house. After this every one having made a *tetich of rockna* on his forehead, the party retires, rejoining the general assembly, and the women taking its place repeat nearly the same ceremonies, and amuse themselves with throwing abeer, (red powder) laughing, chattering, and singing till morning. The rabble in the interim have remained at the public Huli enjoying the fun of flinging about abeer, squirting water or oil, whose smell is not pleasant, (22) bandying gali, (or abuse) "dancing, and singing like devils incarnate," and shouting out *φαλλικὰ-ἄσματα*. After about two hours spent in this manner, the whole body sets out on a tour through the village, drums beating, women screeching, and every one trying to make as much noise as possible; at length, about the eve of dawn, they halt at the potail's house, and from thence gradually disperse to their respective homes. On the first of Cheyt (known from the flinging about, and marking with ashes) by the names of Duraheti (23) or Bhusm Bundum (Sanset. Rujotsa,) every one shaking off the fatigues of the night, rises after a few hours sleep, eager to commence the sports of the day. This chiefly consists in flinging dust, and squirting water, coloured with saffron or some such stuff, at each other, and is first played among themselves by the members of each family. The women take a part in the fun; a man for instance runs up to his Bhajai (elder brother's wife) having his palms smeared with wet abeer, and pretending to make a salam, rubs it over her face. The lady takes the joke in good part, requests to "soorma" his eyes on this happy morning, and covers his whole face with a kajul (lamp black), or perhaps runs off with a part of his dress, which he only gets back by making her a present. Such jokes having lasted a certain time, the men hasten to the potail's chabutra, (terrace) the rendezvous of the village, and where similar sports are being acted, but with more noise and licence. The women of the family from above shower down dust and water on the crowd below, who return the compliment by volleys of indecent gali-gali, which is heard without a blush at this season alone, and does not excite the slightest sentiment of anger. (24) Universal good humour

22. Hamilton's Travels in India. Among the Birmans the throwing of water is the principal amusement.

23. The Duraheti is sometimes put off to the 3d or even the 5th.

24. No respectable woman during the Huli will leave her house, except in case of actual necessity, as every body she meets will insult her; but in the midst of this ap-



indeed prevails, and the zemindar frequently seizes, with success, this favorable opportunity of bringing parties together, whom some trifling quarrel may have estranged. "Let all ill blood," he will say, "be considered as burnt with last night's Huli, &c. &c." But all are getting impatient for a change of fun. The potail therefore rises, and with the village rabble at his heels proceeds to the extinguished Huli, with the ashes of which every one makes a tiluk, using a particular muntra (holy formula) on the occasion, and snatching them up by handfuls, throws showers over his own or his neighbour's head; then with much noise, and indecent mirth, they march in procession about the village by a fixed route, from which year after year they never deviate (25), stopping before certain houses, as that of the Chuinar, Aheer, &c. who claim the distinction as their privilege. Here they raise frantic shouts, bawl out obscene verses, and abuse the inmates in the coarsest language; presently out rushes a woman, and begins belabouring them with a stick, returning the abuse with interest; snatching then some person's cloth, she pulls it off, and the sufferer must pay a small fine of ghee, sweetmeats, &c. before he can get back his garment; or the woman will seize hold of some individual, generally a poor relation of the potail, or the village butt, and dragging him into the house, dress him up in women's clothes, and set him before a chuki (hand-mill) to grind grain. Of course, as before, he only gets liberated by purchase. The fines are the perquisite of the house owners, which explains why the visit was desired by them.

The excesses committed during this procession are scarcely credible; extravagance seems to be considered a religious duty. Not content with throwing about dust by handfuls, they fill small baskets with it, which they empty on the heads of all round them. All distinctions of rank are levelled, any chance passenger, "be he hakim, old man, or raja" is obliged to bow to the law of the Huli; they must bear with a good grace all the vulgar gali; must submit to the clouds of dust and ashes; to having dirty water, and "gingerly oil" (as Hamilton calls it) squirted in his face, and to be well pummelled with patlis (little bags full of water ingeniously made on the spot, in a cor-

parently unbridled licence, certain rules of propriety are religiously observed; processions of females, for instance, would not be interfered with. This conventional decorum is perhaps less strictly attended to here.

25. To do so in the slightest degree, even by turning down a different lane, would, it is supposed, entail some misfortune on the community, as was threatened to the deserters of the *ἱερὰ ὄδος* of Eleusis.

ner of the dhotis); fortunate if he has fallen into a comparatively quiet set, and escapes a pelting with mud, shoes, filth, or stones. Already much excited, and imitating drunkenness, *ebrioli*, if not already drunk with opium, bang, and other such intoxicating (drugs, without which indeed they could hardly support the fatigue of such violent and prolonged sport) the mob with this rude play, and its concomitants shouting, singing, and Bacchanalian dancing, has soon worked itself into a sort of frenzy: they dress themselves up so as to look like bears &c. or as the Brimha Vaiverta instructs, "make a swan or a monkey with cotton." The most absurd antics are played: you may see two individuals abusing each other in the grossest language, immediately afterwards joining in unmeaning and immoderate laughter, "Ex turpissima lite in risum diffusi". Near them perhaps, and with equal reason, stands a man sobbing bitterly as if some misfortune had happened to him (26); others "delighting in nastiness and holy obscenity," clothe themselves in outrageous fashions, (or like the *ἰθὺφαλλοι* at the Dionysia, in women's dresses) and strive to outdo each other in their indelicate and ridiculous postures; nor will they feel shame in thus acting, though their "mothers or sisters or brother's wife are looking on." (27) All classes seem to lose their senses; an individual on all other occasions quiet and decent in his behaviour—some bunian for instance, well off in the world—will forget, for the time, all sense of decency, and think it no degradation to expose himself for the sport of an insane rabble. He seems to be the prototype of the "*Rex-stultorum*;" round his neck will be hung a disgusting chaplet of old shoes, live frogs, and bones; a broken dust basket, supported over his head on a bamboo, represents a regal chatta; worn-out brooms, supply the place of chowrees; and his face having been blackened, he is mounted on a sorry donkey, (28) and paraded in mimic state through the streets, his drunken attendants hooting, shouting, calling him all the fine names they can

26. This, which might seem to be connected with those demonstrations of grief which some believe to have pervaded all, and particularly this, the apparently most joyous of the festivals of antiquity, is generally acted as if real, can be nothing more than the maudlin of drunkenness, as the exuberance of a forced and unnatural gaiety, a mere variety of extravagance (major dementia.)

27. The last sentence, and much of the succeeding description [of the truth of which I have taken pains to be assured] are copied from a little Jain treatise against these practices; called the "*Mithy at Kund*," which we might translate, the "*Bank of Fallacies*".

28. Putting on an asses' mask, and mounted on an ass.

think of, and reeling and tumbling around him like the chorus of Silenus. (29)

These sports are all over by about midday; people now bathe, change their clothes, and become rational again, and returning to their homes, refresh themselves with the best dinner their means can supply. (30) In the afternoon complimentary visits are paid. The zemindar attended by his ryuts, calls on his relations, presents are interchanged, and every one is clothed in his best clothes and smiles. Our own new year's customs are in fact rehearsed even to the Christmas-box; certain of the village tradesmen, such as the jumooli (washerman) the bhooi kahar (or water carrier of the better classes) the guides, &c. call at the houses of their employers, to remind them of the time-sanctioned present, which is in many cases their only pay—some of them displaying the instruments of their craft. The barber, for example, thrusts his mirror into every face which he shaves, and his similarly armed wife making the tour of the zenanas, will not fail, if she have any wit, to flatter the ladies into a generous humour, and to gain a pretty penny by showing them what they love the most. The bari (leaf-plate maker) makes up showy plates of painted tamarind leaves, which he distributes around, and few come without some trifle as an offering. At night the Phul dool (31) attracts a crowd of worshippers, all taking care to propitiate Bhugwna, by laying on his tukht, (throne) some offering proportioned to their circumstances, but where there is a Ramdwara, the superior splendour of the Ramsanehi (32) floralia, draws away a large proportion of the spectators from the worship at the temple.

29. The many parallels to this curious scene will suggest themselves to every antiquary. The ass which bore the feeble old man in the parody of Pegasus and Bellerophon (Apuleius.) The procession, smutted faces, women's dresses, and "imitation of the braying of asses of the festival of fools. (Strutt.) The king of the feast of the Persians, whom they used afterwards to put to death. The Abbott of Misrule, described by Walter Scott in the Abbott, not to speak of the more generally known rites of Greece and Rome.

30. On this day, says the Brimha Vaiverta, "wear garlands, eat pán, and wear good clothes, and mix with women; whoever has not remained with women, is nothing worth. Play with widows and dancing girls, and gain beatitude, certain wealth, and a son, and if you are lame you will get cured."

31. The celebration of this Pooja is very irregular: here it generally varies from the 1st to the 5th of Cheyt budi. At Bindrabun it is put off till the 11th. At Jugger-nath (according to the Mahatma of that place) it lasts from the 8th Suci of Phalgun to the 1st Cheyt.

32. The larger proportion, (the demi-philosophers of the soi-disant Deists,) can hardly bring itself entirely to spiritualize the symbolic Ram. It seems to yearn for the flesh-pots, and hugs its *one* festival with an affection scarcely orthodox. With many

The customs above described as practised on this day, may be considered (independently of trifling local differences) as common both here and in Upper India, but there are others peculiar I believe to this part of the country or Rajpootana, which must not be omitted; one of them is very pleasing. Visits are paid by the head of the village "with his tail on," to any house in which there may be mourning; the owner of it if a man, comes out, and being reminded that all sorrow should be extinguished with the Huli, some of its ashes are sprinkled over his head; processions of women pay similar visits of condolence to females in distress.

But the favourite sport of the day is in the afternoon. In most of the market villages may be observed erected two poles, about fourteen feet high, with small sticks stuck into them to be used as steps to mount by, these being painted red and repaired for the occasion, a great crowd collects around them, where some bhil or bulai (village guide) having a hook let into the flesh of his back, is swung round as at the Siva Sanyasas in Bengal; but here more considerate and humane than in Bengal, they place a chairpae under the turning cross pole, which receives the sufferer, and prevents a dangerous fall, in case of the flesh giving away.

At the foot of the poles they place any old image, generally some fragment of sculpture from a ruined temple, which is called for the day Megh Nath, and it is in his name that this cruel Parikrama\* (for Parikrama it is considered) is undertaken; sometimes in performance of a vow, or to get cured of a disease, or even for the petty subscription which is raised for the victims from the spectators. The deity worshipped is said to be Bhairava, but I do not remember why on this particular day he should be called by the name of the cloud lord, the son of Ráwun. In the Deccan they seem to have wrestling, &c. as a substitute for this, and the place where the wrestlers assemble is dedicated to Vetāl, the prince of the devils. Between the poles a chool (pit) is some-

Ramsanc is indeed the Phul dool, and like Mrs. Wilson's dinner, serves as business for the whole year, six months being occupied in talking of the past, and the other six in preparations for the coming festival. Its celebration on this particular day, and the general belief to be found in many books (see the Hindu selections,) that Ram instituted the Huli, induced me to tax the Baba-gee of a Ramdwara at Indore, with observing that superstition, which he indignantly denied; he gave me however a short but suspiciously sect-spirited history of that festival, which will be mentioned in its place.

\* NOTE.—A *Parikrama* is the act of going in a circle round any object. It is an act of adoration, performed in various ways, and varying with the Deity who for the time is adored.



times dug and filled with hot ashes, across which women run, generally those who have vowed to do so, should they be blessed with a son, in which case they cross it with the "child of the vow" (33) at the breast—but the distance is such a mere step, that they as rarely get scorched (34) as did the priestesses of Diana during the similar ceremony. Though if Sonnerat is to be believed, which he is not (35), it is not in every part of India so easy an ordeal.

There is a peculiarity in the Duraheti here, that it is not as in most places restricted to the 1st of the month, but continues during several days, many classes having a sort of exclusive Duraheti, when they only play with their own kith and kin; but I must confess I have been able to get very little information on this point, nor could, or would, any one explain the rules by which these associations are regulated. In some castes, the licence on these occasions is frightful. Men, I have been credibly informed, unsatisfied with common filth, smear themselves over with ordure, fling it at each other, and remain covered with it for days, during which time they do not enter their houses, and their bread is cooked, and flung out to them by the females. (36) But such horrors, and all the more outrageous extravagancies, are confined to the lowest classes and to towns, the village amusements being generally of a more simple and pleasing character. On the second day of the month, Juma-ditiya or Jumgut, the brahmun worships his shastrus, the koith, his pen and ink, the banker his books, and the mass some Devi or other; at about 12 a grand assembly (Jumgut) takes place at any principal house in the district, invitations being sent to all the neighbourhood where nautches, masks, &c. amuse the folks till night. Here should end the festival, but where the district is rich and populous, the zemindars of different villages have their separate Jumguts on different days, these rarely extend beyond the 5th, the term observed by respectable people, and in the Deccan, and called Rung Punchmi; but some of the lower classes continue the sports for a few days more, and in this part of the country, they are not concluded till the 13th, and by

33. See Calmet's Dictionary.

34. Boyle, art. Comane.

35. It is Sonnerat, I believe, of whom the following story is told. A friend of his who had been in India congratulated him on the success of his book, but said he, I never saw the fine things you speak of. My good fellow, replied Sonnerat, I did not write for such as you, but for those who have not been in India.

36. On such points as these it has of course been necessary to trust to native information, but great pains have been taken to establish accuracy by comparing different accounts.

some of the Mahrattas even till their new year's day, Ghori Prewar, a day the tribe keep with a spirit quite unknown to their brethren of the Ganges.

It is I believe on the Jumgut, that in some parts of Malwa the women collect round the burnt Huli, the charred wood of which they pound into ashes, taking some home to be used as medicine. A singular ceremony next takes place, it has from ancient times been considered in the East, and especially in India, an act of the highest indelicacy for a man to utter his wife's name, or a woman that of her husband's; (see Ward's *Hindus* i, 199; ii, 529) on this occasion however the women alternately ask each other, What is your husband's name? The reply to which is given in a whisper. This mystery is practised in most places at other times; as during the festival of Gangore, of which Tod has given a slight sketch, but which as exactly resembling the rites of the Bona Dea, deserves a more particular description. In the Deccan at the Nāg Punchmi, the women ask each other their husband's names, and the answer is given in rhyme. *Bombay Trans.* III. ; 217.

Many other are the curious and interesting superstitions which might be elicited, by observing the customs of these rude tribes, who have preserved many ancient usages, elsewhere abolished. Some of my notes have been mislaid, but among my memoranda of superstitions to be inquired into, I remark one regarding a Mahratta custom of wearing a seal on the right breast during the Huli, of the nature and meaning of which story I am perfectly ignorant. Of the different amusements of this season, a favourite one is the making of April fools, the similarity of which custom to our own has already been pointed out in the Asiatic Researches, and in Mrs. Grahame's letters.

As an example of the tricks, I select two which have classical parallels. Imitation sweetmeats made of coloured mud or chalk are sent about with due ceremony, as presents. "Vidi" (says Eacolpius in the supper of Trimalchio) "Romæ Saturnalibus ejusmodi (de luto) cænarum imagines fieri." The other example will be more commonly recognised, as it is exactly what Horace (epist. 1 : 16) adverts to. A rupee is made fast to a chabutra by alum or some such stuff; and the different gestures of the person taken in by it, joy and eagerness at the discovery, puzzled looks at being unable to pick it up "in triviis fixum cum te dimittis ob assem," and disappointment and rage at detecting the trick, prove a fertile source of laughter to the concealed wits. Persius also alludes to the same deception, (Sat. 5) "Inque luto fixum possis transcendere

nummum?" Another common joke is less excusable; a party of seemingly grave persons are seated at a shop, a traveller passes: "Where are you going to?" "Such a village:" "Oh then just carry this pot of ghee for us to the potail, and here is an anna for you." The vessel is accordingly lifted on the head of the unsuspecting stranger, but before he has gone many steps, some one gives it a blow with a stick, and the unhappy porter is drenched with mud and filth. But the old fashioned pleasantry of flinging about missiles, may be considered the pet frolic of the Huli. To such an extent is this practice carried in some places, as about Muttra for instance, that the roads are nearly closed, and travellers do not attempt to continue their journey, as they would have to encounter a storm of brick-bats, wood, mud, and shoes, if not of disgusting filth, at every village through which they passed. At Cawnpore the pelting of shoes was, a few years ago, so great a nuisance, that it was a work of danger to walk through the town, and even now, from the same cause, respectable quiet persons dare not venture into the bazars during the three great days of the Huli. For weeks before, every sort of missile is heaped up in the shops on either side of the way, and the favourite weapons, cast-off shoes, fetch a fair price. The opposite houses, fight pitched battles with these primitive arms, and as may well be conceived, any hapless traveller, (37) who shall unconsciously pass that way, thus planted between two fires, is fortunate to escape with only a few bruises, for in some towns, even stones are flung, and serious accidents not unfrequently happen.

It cannot be expected that such rude play should always be taken in good part; and in fact, though the chief people by judiciously endeavouring to turn all complaints into ridicule, prevent much of the mischief, quarrels are very common, and swords and blood are not unfrequently drawn. I had several accounts of the Huli drawn up for me by people of different ranks and castes, and a sentence in one of them very strikingly exhibits the danger of these sports: "When we return home to sleep we bless Bhugwan that we have gone through the day without being engaged in a dispute." The Italians are well aware of the danger of their more civilized mirth, and lesser licence, and (according to Williams's Italy) swords are forbidden to be worn during the carnival.

The common rendezvous of the principals in such mischief is in the

37. Strangers are the principal sufferers, for of course there is a convenient understanding between those who are engaged in the current and necessary business of the day, sellers and buyers of food, &c.

middle of the bazar, where may be seen stretched out in the road, a preposterous and indecent figure of a man, made of a few sticks and old rags. This Indian Priapus, much the same probably, as the "horrors" which Asa set up in the grove (2 Chron. xv. 16,) is here called Nathoo Ram, and is equally common in Rajasthan (Tod) and in the Deccan, (Bombay Trans. vol. i. 240.) Nathoo Ram we were told was a bunian, a notorious gallant, whom a Rajpoot finding too intimate with his wife, killed during the Huli. This figure forming the standing joke of the season, food is daily presented to it with ludicrous gravity; it is plentifully smeared with abeer, and all sorts of absurd antics are played around it; nor can any one pass the spot where it lies without a volley of jokes being discharged at him, unless he has the tact to avert the storm, by paying his devotions with jest and ribaldry, to this exact representative of the Syrian *neuro-spasta*.

Numerous games are also played during the Huli of a more quiet character, which vary of course in every country. The most common one is well known: men range themselves in two circles facing different ways, each person, armed with a stick, goes dancing round, to the tune generally of a fife, and strikes the stick of every one who comes opposite to him. This is the characteristic dance of the Hindus in Afghanistan, and more particularly in Seestan.

A second one, common here, particularly among the Aheers, is as follows:—

The men assemble in one line, the women in another, all armed with sticks, which the former use only as shields. The boys look on, for these games are played chiefly by grown up people, "*senes his pueros*," a battle is mimicked. The women raising a sort of Pœan, strike their sticks against those of their shouting adversaries, who allow themselves to be slowly driven back; when breathless, a few minutes truce is allowed, till some one calls out, the "*succours are at hand, the suwars have arrived*," and the like; and they again set to. The spectators reward the actors with a trifle.

In the evenings the simple rustics enjoy, with undisguised delight, mimes and farces of the rudest description, and which to a townsman would appear insufferably dull and disgusting, for the more amusing plays of the Mahrattas, of which Malcolm and Grant Duff make mention, are rarely acted. Of course the quality, and longer or shorter continuance, of the nautches depend on the means and will of the givers, but many of the richer zemindars commence them from the 11th of Poos Seedi, and keep them up to the 5th of Cheyt. According to the



Pudum Puran, they should continue till the end of spring, till the sun enters —————

On the 13th, the last day of the Malwa Huli, a game is played which has some resemblance to our village greased pole. A pole is erected, of such a height that a man by standing on another's shoulders, can reach the top of it. The women all assemble near him, each armed with a castor plant; a fowl, a piece of cloth, or some such trifle is placed on the top, and is the perquisite of whoever can take it off, assisted only by one other person. The women strike the candidates as hard as they can with the pliant rods, hooting and shouting all the time, and frequently contrive to drive them off, so that the contest is productive of much amusement. The women on this occasion claim the privilege of stopping every passer by, and making him pay toll, a custom which will remind the reader of Strutt, of the rope laid across the roads at this season by the ladies of Hackelay, and of "Binding Tuesday", in our own country. In Booneer of Afghanistan at harvest time the Eusofzy women have a somewhat similar privilege; every one they meet they compel to dance, or to pay them a fine.

It was my intention to have concluded this sketch with select specimens of the songs sung during the festival, and with extracts from the Sanscrit books which speak of the Huli. This plan I must of necessity in part abandon, being far removed from Hindu books and Pundits. Some of the more common songs may be seen in the "Hindu selections." Many of the purans, and other sacred books of the Hindus and Jains, make some mention of the Huli, of these we may instance the Pudum Puran, the Kulpa Drooma of Jey Sing, 4th Kund, the 3d Kund of the Scanha Puran, the Mithy-at Kund, and the Brimha Vaiverta.

To give some idea of the nature of the fables to be met with in these authorities, a sketch is given of the story of the Huli as told in the last named book, which however it must be remembered was written only some four centuries ago. I know of no very ancient Hindu authority on the subject. As the Brimha Vaiverta is devoted to Pracrit worship, much indelicacy might have been expected, but the gross indecency of its account of the Huli makes it impossible to render it at all literal in English.

In the Sutyā Yug, Mahadeo caused the production of a female demon called Holica, whose violent conduct was highly offensive and terrifying to the gods, two of whom, Brimha and Indra, she caught and kept prisoners, wandering about with them, delighted at the fear of the gods. They addressed supplications to her calling her by

twenty-four names, Trigita, Tamuse, Dhumra, Dwanchi, Dhoonda, Holica, &c. ; appeased and pleased with these names, she laughs with a loud voice, bids them dismiss their fear, and promises that the evils for one year are remitted, if on the day on which she was made so happy, they will rejoice, clap hands, steal wood as if for war, spill and steal all people's milk, &c. According to the Pudum Puran, a Rukshisi named Dhoonda, obtained by worship to Sheo an exemption from all evil, except such as could be inflicted on her by innocents (38), from which time she began to persecute all children, and can only be propitiated by the ceremonies as above ———. The Mithy-at-Kund, a Jain authority, states the origin of the Huli as follows—A Sahukar's daughter, fond of gallantry, was in the habit of meeting her lover in the disguise of a slave girl, fearing however that the girl from whom she borrowed the clothes would betray her, she contrived to lock her up in a room where wood was kept, and there miserably burnt her to death. The spirit of the slave girl became a Bintruts Deota, or Bhootni, &c. &c. &c. Such are the *anilia*, to be found in Hindu books, respecting the origin of the Huli; and they are all different. We will conclude with one more account of it, the quaint description of Hamilton. "Wooli (says he) was a knight errant in times of yore, and a fierce fellow in a war with some giants who infested Sindy, and carried away naughty girls and boys, and made butcher's meat of them!" It would have been easy by quotations and analogies from classical authors much to have extended these remarks, but I fear you will think them already too much extended; the subject however treated of, though apparently puerile, is curious and not uninteresting; and as Malcolm remarks, "we may expect to throw light on the ancient history of India from minute inquiries into the origin of the usages and superstitions of the lowest classes of the population."

In a future letter some account will be given of the inscription of Chandragupta, and the other inscriptions of the facsimiles of which you have acknowledged the receipt (39.)

KHAN ALI.

38. The Sanscrit उन्मत्तेभ्यः शिष्येभ्यः has the same double meaning of "silly" and "without sin" as has the word innocent in English.

39. For the many errors of this imperfect and unfinished paper, the circumstances under which it is drawn up must plead an apology.

*Wool and Woollen Manufactures of Khorassan.* By Capt. HUTTON,  
37th Regiment, N. I.

### GOAT'S WOOL, OR DOWN.

The goats of the hilly tracts of Khorassan yield, like those of Cashmere and Thibet, a fine and remarkably soft down, growing at the roots of the outer or true hair.

The colour of this wool is generally of a shade of brown more or less intense, and the outer or hairy coating of the animal is long, and usually jet black. The *white down*, is scarce.

These goats are rather short legged, very shaggy, and very generally horned; they are rather small, and very graceful looking animals.

The best are said to be among the Hazarree and Tymunnee tribes.

These goats produce two fleeces during the year; the first during winter, which is gathered in spring, and the latter during summer, which is gathered in autumn. The latter is said to be in most esteem, and the finest. The reason given is, that in winter the severity of the season checks the natural exudations from the pores of the skin, and keeps it dry, and that consequently the hair receives less nourishment than in summer, and is therefore coarser and less soft.

The heat of the summer months, on the other hand, causing a plentiful discharge of moisture from the pores of the body, furnishes abundant nourishment to the roots of the hair, which becomes in consequence, soft and silky.

The winter fleece is therefore sheared off with the hair, and after undergoing a partial cleansing from hair and animal matter is made into "*Koork-i-Puttoo*," which comes chiefly from Beerjund, in Persia.

The long hair after separation from the wool is made into grain-bags, tents, and ropes.

The autumn fleece is only taken from dead animals. The goat is killed for butcher's meat, and the skin well rubbed over with a solution of lime and potash, and left thus for two or three days, until incipient decay has taken place in the skin, and the hair is easily pulled out; leaving the under wool, or down, free, which is then also taken off separately.

This method appears in all respects to be the same as that practised in Koordistan, as related by Captain Conolly; but the lime with which the skin is rubbed over does not here injure the wool. It is first pulled out of its natural masses by the hand, and afterwards farther sepa-

rated and cleaned in the same manner as cotton, and then spun into threads.

The autumn wool is gathered from the skins of animals which have been slaughtered for food, and it is dearer than the winter fleece, on account of its superior fineness.

In Captain Conolly's Book of Samples, I observed a dark brown wool, labelled, "*Thibetan Shawl Wool.*" I may mention, that during a trip through some of the Tartar districts of the Himalah, where the Shawl Goats abound, I scarcely remember to have seen one dark coloured animal, the prevailing colour being white, with sometimes black ears and head; the wool, or "*Pushm,*" as it is there called, being consequently quite white also. The wool in Captain Conolly's book appeared to me to be the same as that of Khorassan. I mention this, in case he should have sent you specimens.

No. 1. Is a sample of the wool of the prevailing colour, and procured from black goats at Candahar; it is the winter growth.

No. 2. Is another shade. Both are characteristic.

No. 3. Is a woollen cloth manufactured at Beerjund, in Persia, from the winter fleece, and is interspersed with the hairs, which are only, as above mentioned, partially separated from the wool after shearing.

This sample is called "*Barak-Koork-i*;" it is made in pieces of from 9 to 12 inches broad, by 8 to 12 yards long, at from 4 to 10 Company's rupees per piece.

No. 4. Is another sample of a similar, though lighter coloured cloth, from the same place, and of the same kind of wool.

The price in Beerjund is 5 rupees per piece of 7 yards, which as the yard there is 42 inches, and the rupee equal only to 8 annas, makes its price in Company's rupees to be 2-8 per 8 yards and 6 inches. The rupee in use at Beerjund is "*Adam-Khan-i.*"

In Candahar the same quantity sold for 8 rupees, each equal to 12 annas, so that the cost from Beerjund was increased  $3\frac{1}{2}$  Company's rupees. This was owing to the endless duties levied on the road; and Kohundil Khan\* exacted a farther tax of  $\frac{1}{40}$  on its arrival.

This cloth is also exported to Cabul, Scindh, Shikarpore, and other places. At present the greatest quantity goes to Tehran; and in Candahar and other Afghan towns the demand is far greater than the supply.

\* NOTE.—One of the three brothers of Dost Mahummud Khan who held Candahar after the usurpation as a separate government. The taxes on trade and manufactures levied by these chiefs were most oppressive.



No. 5. Is a finer kind, made of lighter coloured wool. The sizes the same.

No. 6. Is called "*Puttoo Koork-i*," it is from Herat, Beerjund, and Seistan. The best however is produced in Cabul. The foreign duty on this is  $\frac{1}{40}$ \* but in Kohundil Khan's time it amounted to  $\frac{1}{7}$  besides the various taxes on the road. It is in most demand among Hindoos. It is washed after being woven, to swell the threads and give it a thick and soft feel.

The size is 4 to 5 yards long, by  $\frac{1}{2}$  to  $\frac{3}{4}$  yard wide, at 12 Co's. Rupees per piece.

No. 7. This is the commonest colour, and the wool abundant. It is made at Candahar, Cabul, and Herat. It is also called "*Puttoo Koork-i*;" each puttoo is made of two pieces, stitched longitudinally together, of the following sizes—

Largest size, 3 ft. 10 $\frac{1}{2}$  ins. wide, by 4 yds. 2 ft. 6 $\frac{1}{2}$  in. long.

Smallest size, 3 ft. 10 ins. wide, by 4 yds. 2 ft. long.

A puttoo consequently, of the largest size, is 2 yards 1 foot 9 $\frac{1}{4}$  inches wide, by 4 yards 2 feet 6 $\frac{1}{2}$  ins. long.

One of the second size, is 2 yards 1 foot 8 inches wide, by 4 yards 2 feet in length.

These are the outside sizes.

The price of the first size was formerly 13 $\frac{1}{2}$  Co's. Rupees, or 18 Candaharees, now it sells for 24 Candaharees.

The price of the second size was formerly 12 Candaharees, but is now up to 14 to 17 Candaharee rupees.†

No. 8. "*Puttoo Koork-i*." This wool is scarce, and is collected from all districts, Cabul, Herat, Beerjund, &c. There is difficulty in procuring it, as the goats are usually dark coloured. The cloth manufactured in Cabul is reckoned the best, and that from Herat the worst. The cloth made at Candahar, during the sway of the Sirdars (of which the accompanying No. 8 is a specimen) sold at 10 Candahar rupees per puttoo, or shawl of 2 yards 2 feet 9 inches wide, by 4 yards 2 feet 5 $\frac{1}{2}$  inches in length.

All puttoos vary from  $\frac{1}{2}$  to  $\frac{3}{4}$  yard wide by 4 to 10 yards long. No. 8 is an article of export to Scindh and Khilat.

\* N.B.—The duties now levied on all merchandise are thus :—Foreign  $\frac{1}{40}$ , Home made  $\frac{1}{100}$ , transit duty in or out, on all goods Home or Foreign  $\frac{1}{300}$

† N.B. Candahar rupee, or 12 annas, Company's.

Few pieces are made, however, on account of the scarcity of white wool, and also because from its soon showing the dirt, the demand was very limited. It was chiefly taken by Hindoos.

No. 9. Is from Herat and the Herat Hazarrees; it is made in pieces of  $\frac{1}{2}$  yard wide by 7 to 9 yards long, varying in price from 10 to 100 rupees according to its thickness; the thicker it is, the dearer.

It is not exported for trade, but travellers who can afford it, purchase pieces at the places where it is manufactured.

No. 10. "*Nummud-Koork-i.*" This is a felt, and is made at Candahar and among the Tymunnees; it is made to order of all sizes, and sells at 4 rupees for one yard square.

Felts are made in a very simple manner: a mat of rushes is laid open on the ground, and the wool spread over it; the mat is then tightly folded up, and well rolled backwards and forwards, by men pressing heavily upon it, by which means the wool becomes so completely matted, that it is almost impossible to unravel it again.

This kind of Nummud is used as an article of dress; but those which are used as rugs are made from the sheep's wool, and are much coarser and thicker.

No. 11. "*Puttoo Koork-i.*" This comes from Bokhara, and is made in pieces of about 10 to 12 yards long and 16 to 17 inches wide. In the Sirdars' time it sold from 12 to 15 Candahar rupees (12 annas) per piece, according to its fineness; at present the price is from 14 to 16 Company's rupees.

No. 12. Is a sample of wool taken from a cross between the tame and wild goat of Khorassan. Of the latter a drawing and description will be forwarded hereafter. This is sent merely as a curiosity.

No. 13. Is a sample of thread spun by the reel, or hand-wheel. There are finer than these.

No. 14. Is thread spun by the hand.

N. B.—The Tymunnee woollen fabrics are,

- i. "*Barak Shotur-i,*" made of young dromedary wool.
  - ii. "*Barak Barai,*" made of goat's wool.
  - iii. "*Barak Barai,*" made of lamb's wool.
  - iv. Tents, grain bags, ropes, and nummuds, of goat's hair and sheep's wool.
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## SHEEP'S WOOL.—CANDAHAR.

There are two varieties of sheep in this part of Khorassan, both possessing the broad fat tail. Of these the Tymunnee breed is the finest, and the tail often so uncommonly cumbrous as to impede the animal's movements; in such cases a small cart or support on wheels is placed beneath it, so as to relieve the sheep from the weight, and enable it to walk about. An amusing anecdote, serving to show the ignorant credulity of the people, is told of the method sometimes adopted for increasing the size of these tails. Fresh cold water is poured over the tail every morning, and when thoroughly drenched, it is well patted and rubbed all over by the hand.

The reason given for this treatment is, "*that the water softens the skin, and renders it, as it were, malleable, and consequently the patting and rubbing stretches it, so as to give room for the tail to grow*"!!

The people inhabiting the hill districts, where the pasture is generally better than that of the plains, possess large flocks, and derive their chief support from the sale of wool, woollen stuffs, croot (or dried curds) and ghee.

These sheep, like the goats already mentioned, yield two fleeces during the year—the winter and summer growth. That of the winter is said to be the worst, on account of the dirt and smoke which it collects while the sheep are folded, which is in woollen tents. It is, however, the longest, and is made into carpets, grain-bags, and other coarse articles. That of autumn is finer, and made into cloaks (kosahs) and nummuds.

The wool is not exported, but is manufactured in the districts where it is produced.

In the shearing time the sheep are well washed, and when dried by the sun, are clipped with large shears. The wool undergoes no farther cleaning. The woollens manufactured at Candahar from sheep's wool are made of the fleece, which is procured from the skins of slaughtered animals. If the skins possess merely the short wool, which is the remains of the spring fleece, they are sold by the butchers to the "posteen\*" makers at from one to two annas each; but if the animal is slaughtered in autumn, and possesses the summer fleece, the wool is taken off, and brings two to four annas, while the skin is sold separately to the tanners.

\* NOTE.—A sort of winter garment of sheep skin with the wool on, universally worn in cold weather.

No. 1. Is a sample of wool of the winter growth from a Candahar Ram. The quantity yielded was rather better than  $3\frac{1}{4}$  lbs. English. This is reckoned good.

No. 2. From a Ewe yielding a fleece of  $2\frac{1}{4}$  lbs.

No. 3. From a Ewe yielding a fleece of  $2\frac{3}{4}$  lbs.

No. 4. From a Lamb, two months old.

No. 5. "*Shalakee*." This is the manufacture of Candahar, and is finer than that of the districts, on account of the threads being spun by the wheel instead of the twirling stone. It is made in pieces of 25 inches by 5 to 10 yards long, Candahar measures, i. e. from 5 yards 2 feet 6 inches to 11 yards 2 feet, English measure, long.

The price formerly was to  $2\frac{1}{4}$  Co's. Rs. per piece, but now it is to 6 Co's. Rs. It is worn as shawls or chuddurs.

No. 6. "*Bārāk*." Made from Hazarree wool, and manufactured in the Hazarree country, where it is called "*Bārāk-i-Sirkullee*;" the size is 15 inches wide by 7 yards long, and the price 3 Co's. Rs. It is subject to a duty of 2 annas per piece. Used as chogahs or cloaks.

No. 7. "*Bārāk-i-Bārai*." This is made from Lamb's wool by the Candahar Hazarrees; the size 15 inches wide by 7 yards long, price per piece 3-12 Co's. Rs.

No. 8. "*Bārāk-i-Bārai*" of Cabul. It is made also of Lamb's wool by the Cabul Hazarrees, in pieces 6 to 7 yards long, and sells at from 5 to 10 Co's. Rs. per piece.

No. 9. "*Barak-i-Barai*." The manufacture of Ghuzni Hazarrees from Lamb's wool, size from 28 to 30 inches wide by 7 to 8 yards long, price from 2 to 5 Rs.

Besides these manufactures, there are carpets, grain bags, saddle bags, nummuds or rugs, felt cloaks, called kosahs, peculiar to Candahar, mittens, socks, and horse cloths.

No. 10. Is a sample of the nummud, or felt, of which the "kosahs" are made.

No. 11. Is from Herat, and is very similar to what the Tartars of Hungrung and Spiti call "Birmore," but it is thinner; 16 to 18 inches wide by 6 to 7 yards long; price from 3 to 6 Co's. Rs.

No. 12. Is a sample of wool taken from the wild sheep of Khorassan, and is added merely as a curiosity.

Along with the foregoing samples, I have the pleasure to send



two specimens of the woollens manufactured in Kunawar and Tartary, to which I beg especially to call attention, as they are made from wool, which I am informed was rejected in the English markets.

For remarks on the wool, sheep, and mode of trading with the Tartars, I must beg to refer to my Journal of a trip to Spiti.

No. 1. Is a sample of what the hill people call "Sooklaut." It is made in Kunawur, at the towns of Soongnum and Kanum, near the head of the district, from wool of the Thibetan sheep. It is said to be finest at Kanum. In Soongnum the chief manufacture is blankets.

No. 2. Is a sample of a cloth manufactured by the Tartars of Spiti, chiefly for home consumption, from similar wool to the last.

These woollens are very generally worn in the higher hilly districts, and are called "birmoree."

The cloth is made in pieces of about 18 inches broad, and varying in length from 6 to 12 yards; the pieces are generally sold in pairs, at 5 to 7 rupees, according to the quality and size. This sample is reckoned good, and is taken off a piece of 12 yards. At Simla a pair of these would sell (if procurable at all) from 14 to 20 rupees. Both these are characteristic of the manufactures of Kunawar and Tartary. They are good samples of what these rude people can produce from that *very wool* which was pronounced *bad*, and rejected in England some years ago, and to which allusion is made in my journey to Spiti.

If such creditable woollens can be manufactured from Thibetan wool, by a *semi-barbarous people*, and by the *rudest machinery*, what might not be expected from the finished looms of Europe?

Nothing can show more clearly that mismanagement must have existed, than the quality of these very woollens prepared from the wool which at home was pronounced unservicable!

It must be borne in mind to, that these are made from unpicked wool, and that the wool itself is quite *uncultivated*, no attention being paid to the quality of the fleece of those males and females which are used for breeding. Were attention paid to this point—and it probably would be were there a demand for the article—the fleece of the Choomoorte, or Thibetan sheep, would soon bid fair to rival, if not excel, the finest products of Europe.

By a few judicious crosses with English rams or ewes, the breed might be made to undergo the dampness of a lower climate, and even-

tually become acclimated in England, and the wool of both be perhaps materially improved.

*Candahar, 27th April, 1840.*

N. B. Should leisure occur, I intend shortly to draw up a note on the culture of silk at Candahar, which I shall do myself the honor of forwarding.

### *Proceedings of the Asiatic Society.*

*(Wednesday Evening, 10th June, 1840.)*

The Honorable Sir E. RYAN, President in the chair.

The Proceedings of the last Meeting were read and confirmed.

Lieutenant ARTHUR BROOME, Deputy Secretary Military Board, was proposed by the Officiating Secretary, seconded by Professor W. B. O'SHAUGHNESSY.

Major R. BIRCH, Deputy Secretary to Government, Military Department, was proposed by the President, seconded by the Officiating Secretary.

Read a letter from J. ALEXANDER, Esq. Officiating Government Agent, forwarding the Account Current of the Society's funds remaining in his hand on the 30th April last, exhibiting in favor of the Society, Government securities to the amount of Sa. Rs. 10,000, and cash 742-7-1.

The Officiating Secretary apprised the Meeting, that he has transmitted three Tibetan Manuscripts to Major F. JENKINS, for the use of his interpreter Mr. KELLNER, in prosecuting his studies in that language, as ordered by the Committee of Papers.

#### *Library.*

Read a letter from F. J. HALLIDAY, Esq. Junior Secretary to the Government of India, Revenue Department, forwarding for deposit a copy of Nos. 15 and 16 of Dr. WIGHT's *Icones Plantarum Indiæ Orientalis*, or Figures of Indian Plants.

Read a letter from H. V. BAYLEY, Esq. Assistant Secretary to the Government of India, forwarding for deposit, a copy of the work entitled, "Chapters of the Modern History of British India," received from the Hon'ble the Court of Directors.

Read a letter from T. C. JARDINE, Esq. Assistant Surgeon, 2nd Light Cavalry, forwarding for presentation a copy of his publication, entitled, "Catalogue of the Birds of the Peninsula of India," and offering to lend his aid in promoting the laudable objects of the Society.

The following books were presented :

Malcolmson's Clinical Remarks on some cases of Liver abscess, presenting externally.—*By the author.*

History of British Birds, by Mr. Yarrel—*Purchased.*

Naturalist's Library; Mammalia, vol. 9. Dogs.

The Meteorological Register for the Month of April 1840, was presented by the Surveyor General.

The following were received from the Booksellers :—

Lardner's Cabinet Cyclopædia—

Bell's Poets, vol. 2d.

The Officiating Secretary laid before the Meeting a very curious table, drawn up by a Khattree at Delhi, which gave an account of the reigns of the various kings descended from Timoor, their possessions, revenue, &c. &c.

### *Literary and Antiquities.*

The Officiating Secretary exhibited to the Meeting an Astrolabe, the property of Major POTTINGER.

Resolved—That the Instrument be submitted to Mr. MIDDLETON for his opinion, if he would oblige the Society with it.

A collection of gems and coins of great interest was submitted by the Officiating Secretary, the property of Major POTTINGER.

Read a letter from Lieut. E. B. CONOLLY, forwarding impressions of coins, gems, and relics, from Herat.

Read a communication from Major DAVIDSON, regarding the mode of dwarfing the pineapple.

Resolved—That the communication be made over to the Agricultural Society.

Read a letter from H. V. BAYLEY, Esq. Assistant Secretary to the Government of India, transmitting for publication in the *Society's Journal*, the following papers :—

Lieutenant Conolly's paper on Seistan.

Copy of a report submitted to Government by the Committee appointed to investigate the Coal and Mineral Resources of India.

Read a letter from Messrs. THACKER and Co. forwarding on behalf of Captain T. S. BURT for publication in the *Society's Journal*, facsimile of an Inscription taken in the temple at Odeypur, near Saugur.

Memoir of Sylhet, Kachar, and the adjacent districts, by Captain FISHER, was presented in his name by the President.

Read a letter from Lieut. E. B. CONOLLY, forwarding his second paper on the antiquities between Mhow and Saugur.

### *Museum.*

The Officiating Secretary exhibited to the Meeting a fine specimen of cloth made by the Lepchas of Sikim. The cloth appeared very much like *looe* cloth of Hindoostan

Several Zoological specimens were presented to the Society, as also a small collection of Himalayan game, and other birds, by the Officiating Secretary.

### *Physical.*

Memorandum on the differences of the meridian of the Observatory at Madras and the Flag Staff of Fort William, and of the cantonment of Futtyghur in the Doab ; by Col. J. A. HODGSON, late Surveyor General of India.

Major POTTINGER forwarded a Meteorological table kept at Herat from the beginning of March 1838.

Specimens of Bactrian camels', sheep, and goats' wool, with an account of its manufacture were submitted to the Meeting.

Resolved—That after the paper was published in the Journal, the manuscript with the specimens be made over to the Agricultural Society.

On the conclusion of the business, the Officiating Secretary apprised the Meeting, that a letter was received from Dr. J. McCLELLAND, claiming the arrears of his salary as Curator, at 150 rupees, for the month of May and up to 3d July 1839, and January and February of the current year, at the enhanced rate, viz. 250 rupees per month, sanctioned by the Honorable the Court of Directors. The letter in question was circulated to the Committee of Papers, who recommended the subject to be discussed at the General Meeting of the Society.

Resolved—That the Society sanction the payment of the first claim of Dr. McCLELLAND at the rate mentioned by him, rupees 150 for May and June 1839; and 50 rupees for the two latter months, at the rate of which he first accepted the situation. It was also resolved, that the Society did not draw any money from Government as Curator's salary for the months of January and February of the present year, or they would have made over the amount to Dr. McCLELLAND.

### *Proceedings of the Asiatic Society.*

*(Wednesday Evening, 1st July, 1840.)*

The Honorable Sir E. RYAN, President, in the chair.

The President rose and addressed the Meeting.

Gentlemen,—I am anxious before any attempt is made to proceed with the business of the evening, to address a few words to the Members present. I am sure, I am anticipated by all, when I say I am about to allude to the irreparable loss which the Society has sustained in the death of its Secretary, the late Mr. James PRINSEP. I shall not attempt to pass a studied eulogium on this distinguished person; that will be done on a future occasion, by those who are infinitely better qualified to do justice to his merits, than myself; and that such an occasion will arrive, you must most of you have been informed by the public prints; but I cannot be altogether silent, it would be unfitting the place, however unworthily, I hold amongst you, and it would but ill accord with your sentiments and feelings. It is known to you all, that for eight years Mr. PRINSEP was the Secretary of this Society; with what indefatigable zeal, with what ability he conducted the duties of his office, you can indeed testify. The reputation which the Society now enjoys in Europe, I may with truth say, is mainly owing to his efforts. Amidst the most laborious public duties, he carried on a most extensive correspondence on literary and scientific subjects with Europe and Asia. He conducted the Journal of the Society, which he enriched by a variety of original papers, especially by his researches into the antiquities of India, in which his discoveries have attracted the admiration of all who have any taste for antiquarian research, leading to results the most important, and connecting, in truth, the histories of the east and west. I have prepared a resolution, expressing, I hope, in more accurate language than the words I have utter-



ed, what I feel sure are the feelings of this Society, and I will propose it for your adoption. If the Society feels as I do on this occasion, the business of this evening will not proceed further. The resolution is as follows.

The Asiatic Society is desirous of expressing its sense of the great loss it has sustained by the death of its Secretary Mr. James PRINSEP.

For a period of six years, in the midst of laborious public duties, he devoted himself to the pursuits of the Society with unexampled assiduity and zeal. He carried on an extensive correspondence in Asia and in Europe. He edited the *Journal of the Asiatic Society*, a work containing the most valuable records of all that had been effected in Natural History, in Chemistry, in Geography, in Geology, in Statistics, and in the Language and Literature of the East; amongst these his own contributions form the most conspicuous part, and have been the means of raising the *Journal* to that high degree of celebrity, which it has attained, not only in this country, but in Europe, and all parts of the world.

His latter labours in decyphering the Pali inscriptions of Asoca, and in tracing through the Bactrian coins, the link between the histories of the East and West, have placed him in the foremost rank of those whose brilliant discoveries have enlightened and adorned the obscure path of antiquarian research.

To have a perpetual memorial of such a man among us, the Society solicits the aid of its Members, to place his bust by the side of those distinguished men who have preceded him.

The Honorable W. W. BIRD begged to second the resolution. It would be presumptuous in me to expatiate upon the labours of the late Mr. PRINSEP, that is for the Society; for other members are far better able than myself to do the subject credit. But all, I will venture to express, will agree with me when I say, that as to those labours, with the numerous other avocations in which he was engaged, he sacrificed his life, it would be impossible for this Society to do sufficient honour to the memory of such a man.

Dr. John GRANT.—If the last honored speaker deemed it presumptuous on his part to expatiate upon the labours and merits of the late Mr. James PRINSEP, how much greater presumption would it be in me to do so at any length, nevertheless on so peculiar and solemn an occasion, I cannot reconcile it to my feelings to allow the resolution to pass in silence, without testifying, however imperfectly, to the worth of our departed friend. As a man of science and unwearying zeal, he could not be surpassed. Whatever he undertook he never gave up until he had either mastered the subject or satisfied himself that it was impracticable; truth in him found an active, energetic, and clear-minded advocate. Our excellent President has alluded to his labours in various walks of science in this country. He was a valuable member of the Society before he became its Secretary, and a frequent contributor to its publications and collections. It was said of Cuvier, that from a fossil fragment he could reconstruct individual specimens of animals no longer existing; so with James PRINSEP it might be said, that from a letter on a coin, he could trace a dynasty of ancient kings. The resolution before us was worthy of the Society, and of him, whose memory it was anxious to honour. But it was not solely as a philosopher and

cultivator of science, that we have cause to regret the heavy loss the Society has sustained, we have also to bewail him as a friend and member of the community. How loveable were his qualities, how sweet his disposition, which the warmth of discussion never ruffled, nor the acerbity of opposition soured. I cannot trust myself to say more, I feel quite unprepared to do so. I have merely risen to cast my humble sprig of rosemary upon the grave of our departed friend. Has not knowledge also her triumphs as well as war; died he not an heroic death in the breach of science, a martyr to his devotion in a glorious cause? To cite an often quoted but apposite sentiment—

“He was a man, take him for all in all,  
We never shall look upon his like again.”

Dr. W. B. O'SHAUGHNESSY.—It has been said, “out of the fulness of the heart the mouth speaketh,” but with me on the present occasion the reverse is but too true; my heart is too full to allow the expression of all I feel. As a physician, I knew well before his departure for England, what would be the result of Mr. PRINSEP'S illness, and in order that the Society might secure some testimonial of so inestimable a man, I wrote to Professor WILSON, and begged of him to take steps for obtaining a bust for us. CHANTRY has seen Mr. PRINSEP two or three times, and I have reason to think, that the ardent wishes of the Society, have already been in a great measure anticipated. I would beg to add to the resolution which has been moved, that at the meeting, which is to be held at the Town Hall, our office bearers be requested to attend as a deputation from our body, to accord with the homage which will be expressed on that occasion to Mr. PRINSEP'S memory. This method has been adopted on such occasions, by the Academie Royale of France, and by the Academy of Berlin, &c. and with such precedents as these, we cannot go far wrong in following their example.

Dr. GRANT seconded Dr. O'SHAUGHNESSY.

Sir Edward RYAN.—Gentlemen,—I proposed the resolution with an expectation that it would be the only one that would engage our attention this evening, and that in respect to the departed, and the solemnity of the event, this Meeting should be adjourned till a future day. With reference to what has been said regarding the expectation of our being able to obtain a bust, I am afraid from accounts that have been received in India, that we have not been yet successful. CHANTRY did visit Mr. PRINSEP, but from several causes was unable to obtain a faithful likeness.

The best way, now in my opinion, to gain what we desire, would be, to send home a copy of the picture which is in the possession of Mr. Charles PRINSEP, from which, with a little additional aid, I doubt not, we shall be able to obtain that we require.\* This call for a testimonial has been made upon particular members, not upon the Society in general, for I think it is not a subject for the Society to take into consideration—and I beg to propose, that such members as have veneration and regard for the late Mr. James PRINSEP should now subscribe for the testimonial. I entirely concur with Dr. O'SHAUGHNESSY in thinking that a deputation from our body should attend the Public Meeting of friends at the Town Hall.

The Meeting was then declared adjourned.



